120-442

TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1865.

No. ~~878~~ 121

WILLIAM H. PLUMMER, ADMINISTRATOR OF HIRAM TUCKER, DECEASED, APPELLANT,

vs.

SARGENT AND COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

FILED OCTOBER 9, 1865.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1885.

No. 378.

WILLIAM H. PLUMMER, ADMINISTRATOR OF HIRAM TUCKER, DECEASED, APPELLANT,

vs.

SARGENT AND COMPANY.

APPEAL FROM THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CONNECTICUT.

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1 to 6 HIRAM TUCKER, Complainant,
v.
SARGENT & COMPANY, Defendant. } In Equity.

To the Honorable the Supreme Court of the United States:

The appeal of William H. Plummer, of Boston, in the county of Suffolk and State of Massachusetts, as he is the administrator of the estate of Hiram Tucker, deceased, late of said Boston, complainant and appellant, respectfully showeth:

That upon the 6th day of January, A. D. 1880, the said Hiram Tucker, then being in full life, filed his bill of complaint in the circuit court of the United States for the district of Connecticut against the above-named defendant and appellee, showing that he was the original and first inventor of a new and useful manufacture of iron ornamented in imitation of bronze, and of the process for producing the same, fully described in the letters patent which were issued to said Tucker therefore, which were dated the 15th day of December, A. D. 1883, whereby there was secured to your orator the full and exclusive right and liberty of practicing said process for or-
7 namenting iron in imitation of bronze, as set forth in said letters patent, for the full term and period of seventeen years from and after the date of said patent.

That thereafter, by reason of a defective specification, said letters patent became inoperative *by reason of a defective specification*, and that the same were duly surrendered and cancelled, and proper proceedings being had, new reissued letters patent in two divisions were issued for the same invention, the one for the process and the other for the product, both dated the 11th day of September, A. D. 1886, numbered, viz., No. 2355 & 2356, whereby there was secured the full and exclusive right and liberty of ornamenting iron in accordance with said invention, of which the said Tucker, at the time of the bringing of said bill was in full enjoyment and possession.

That the said defendant, well knowing the premises and in violation of said Tucker's exclusive rights under said reissued patents, was using and selling large quantities of iron ornaments in imitation of bronze by the process described in said reissued letters patent, and was practicing said process extensively in the manufacture of various kinds of ironware, to the great injury of the complainant, and
8 praying that said defendant be restrained by a writ of injunction from practicing the said process of ornamentation, and selling or using articles ornamented by it, and that defendant should be decreed to account for and pay over to the said complainant all such gains and profits as it had made and acquired from the unlawful use and practice aforesaid, and such other relief as the complainant was entitled to receive.

And thereafter the said defendant, having appeared in said court, filed its answer, alleging that said reissued letters patent were void for vagueness and uncertainty, and for being for a different invention than that claimed in the original letters patent, and as purporting to secure exclusive rights which in their nature are not patentable, also denying that the defendants had colored iron by the

process described in said reissued patents, and alleging that the defendants had colored iron only by processes as were in public use more than two years prior to the application of Hiram Tucker for a patent therefor, and that said Tucker was not the original inventor thereof.

That the parties were at issue on said bill and answer; that proofs thereupon were taken and filed and a hearing had thereon before said court, and thereafter, on the 20th day of September, A. D.
9 1881, did make its final judgment, order, and decree dismissing said bill of complaint with costs.

That on or about the —— day of ———, A. D. 188–, the said Tucker died, and the said Plummer was, on the —— day of ———, A. D. 188–, appointed his administrator; and whereas, upon examination, he believes said decree to have been erroneous, and disastrous to the estate of said deceased, therefore the appellant was filed a bill of revivor and obtained a decree reviving said actions, and he now appeals from the whole of said decree of said circuit court, and respectfully prays that the decree thereof and the bill, answer, pleadings, depositions, evidence of proceedings, and the whole record and evidence in the said cause may be sent to the Supreme Court of the United States without delay, and that the said Supreme Court will proceed to hear the said cause anew, and that the said decree of the circuit court and every part thereof may be reversed by a decree made in accordance with the prayer of said bill of complaint, or such other decree as to the said Supreme Court shall seem just.

WILLIAM H. PLUMMER,
Administrator Estate of Hiram Tucker.

10 UNITED STATES OF AMERICA, }
District of Massachusetts, } *ss:*

BOSTON, *May* 10, 1883.

Then personally appeared the above-named William H. Plummer and subscribed the foregoing bill and made oath that the statements therein made as of his own knowledge are true, and that those made upon information and belief he believes to be true.

Before me—

[NOTARIAL SEAL.]

GEO. W. MORSE,
Notary Public.

11 *Bond.*

Know all men by these presents that we, William H. Plummer, of Cambridge, county of Middlesex, and State of Massachusetts, principal, and Geo. W. Morse, of Newton, county of Middlesex, and State of Massachusetts, and Samuel P. Teele, of Cambridge, county of Middlesex, and State of Massachusetts, sureties, are held and firmly bound unto Sargent & Co. in the sum of three hundred dollars, to be paid as liquidated damages; for the payment of which, well and truly to be made to the United States, we bind ourselves, our heirs, executors, administrators, or assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this 17th day of May, A. D. 1883.

The condition of the above obligation is such that whereas the said William H. Plummer hath appealed to the Supreme Court of the United States to reverse the judgment rendered in the case of Hiram Tucker *vs.* Sargent & Co. by the United States circuit court for the district of Connecticut.

Now, therefore, this condition of this obligation is such that
12 if the above-named William H. Plummer shall prosecute his said appeal to effect and answer all costs if he shall fail to make good his plea, then this obligation is void; otherwise to remain in full force and virtue.

In testimony whereof the said William H. Plummer, George W. Morse, and Samuel P. Teele have hereunto subscribed their hands and affixed their seals the day first above written.

WILLIAM H. PLUMMER, [L. S.]
45 *Grome St., Cambridge, Mass.*
GEO. W. MORSE, [L. S.]
28 *State St., Boston, Mass.*
SAMUEL P. TEELE, [L. S.]
88 *Washington St., Cambridge, Mass.*

Signed, sealed, and delivered in presence of—
LEON F. CHAMELIN,

To W. H. P., G. W. M., S. P. T.

(Two seals to each signature.)

STATE OF MASSACHUSETTS, } *ss:*
County of Middlesex, }

Personally appeared before me, a justice of the peace in and for said State of Massachusetts, the said George W. Morse and Samuel P. Teele, who signed the above obligation, and who made solemn oath that they are each worth five thousand dollars over and above their legal liabilities, at least.

GEO. W. MORSE.
SAMUEL P. TEELE.

Sworn to and subscribed, as above written, before me this 17th day of May, 1883.

LEON F. CHAMELIN,
Justice of the Peace.

13 OFFICE OF THE U. S. CIRCUIT COURT,
DISTRICT OF CONNECTICUT,
HARTFORD, *May* 18, *A. D.* 1883.

I hereby certify that George W. Morse, one of the sureties who have signed the foregoing bond, is known to me as a resident of Newton, Massachusetts, and a citizen of the United States, and that I believe them to be amply sufficient security for the amount thereof, and that the bond is good.

E. E. MARVIN, *Clerk, etc.*

DISTRICT OF CONNECTICUT, HARTFORD, *May* 18, 1883.

The above and foregoing bond is approved and the appeal allowed.

N. SHIPMAN,
District Judge.

14 United States Circuit Court, District of Connecticut. In Equity.

WILLIAM H. PLUMMER, Administrator of Hiram Tucker,
vs.
SARGENT & COMPANY.

By the Honorable Nathaniel Shipman, one of the judges of the circuit court of the United States for the district of Connecticut, to Sargent & Company, Greeting:

Whereas William H. Plummer, of Cambridge, in the district of Massachusetts, as he is administrator of the estate of Hiram Tucker, complainant of the original bill of complaint, now deceased, having now appeared as a party plaintiff in the suit, by his bill of revivor hereinbefore filed, hath lately appealed to the Supreme Court of the United States from the final decree lately rendered and entered in the above cause in favor of you, the said Sargent & Co., and hath filed the security required by law, you are therefore cited to appear before the said Supreme Court of the United States, at the
15 city of Washington, in the District of Columbia on the second Monday of October, A. D. 1883, to do and receive what may appertain to justice to be done in the premises.

Given under my hand, at the city of Hartford, in the district of Connecticut, in the second circuit, this 18th day of May, A. D. 1883.

N. SHIPMAN,
One of the Judges of the Circuit Court for the District of Connecticut.

NEW HAVEN, *May* 18, 1883.

Service of the foregoing citation is hereby acknowledged.

JNO. S. BEACH,
Sol'r for Sargent & Co.

16 *The Return of the Judges of the Circuit Court of the United States for the District of Connecticut to the foregoing Appeal.*

The bill, answer, and pleadings, evidence and proceedings whereof mention is therein made, follow in these words, viz:

HIRAM TUCKER
v.
SARGENT & COMPANY. } In Equity.

Be it remembered that heretofore, on the 6th day of January, 1880, there was filed in this court a bill of complaint in the following words, viz:

17 *Bill of Complaint.*

Circuit Court of the United States, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & COMPANY.

To the honorable the judges of the circuit court of the United States for the district of Connecticut:

Hiram Tucker, of Boston, in the district of Massachusetts, brings this his bill of complaint against Sargent & Company, a corporation organized under the laws of the State of Connecticut and located and doing business in the city of New Haven, in said State.

And thereupon your orator complains and says that he, being the original and first inventor of a new and useful manufacture of iron ornamented in imitation of bronze, and of the process for producing the same, fully described in the letters patent hereinafter mentioned, which manufacture and process had not been known or used before his said invention thereof, and which had not been, at the time of his application for letters patent therefor, as hereinafter set forth, in in public use or on sale with his consent or allowance for the space of two years, and being also a citizen of the United States, did, on the fifteenth day of December, A. D. 1863, upon due application therefor, obtain letters patent of the United States in due form of law, under the seal of the Patent Office of the United States, bearing date the day and year last above mentioned, signed by the Secretary of the Interior and countersigned by the Commissioner of

18 Patents of the United States, whereby there was granted to your orator, his executors, administrators, and assigns, for the term of seventeen years from the date thereof, the full and exclusive right and liberty of practising said process for ornamenting iron in imitation of bronze as set forth in said letters patent.

And your orator further shows that said letters patent, and all rights and interests in or pertaining to the same, were, on or about the third day of March, A. D. 1865, by an instrument in writing of that date, duly assigned by your orator to the firm of Tucker & Company, which firm then consisted of your orator and one Thomas J. Fisher, and that thereafter, to wit, on or about the twenty-ninth day of March, A. D. 1866, said letters patent were, by an instrument in writing of that date, duly assigned by said firm of Tucker & Company to the Tucker Manufacturing Company, a corporation organized under the laws of the Commonwealth of Massachusetts and having its usual place of business in Boston, in said Commonwealth, both of which instruments of assignment were duly recorded in the Patent Office of the United States, as by the same or by certified copies thereof in court to be produced will fully appear.

And your orator further shows that said letters patent being inoperative by reason of a defective specification, through inadvertence, accident, or mistake, the same were duly surrendered; and, upon proper proceedings being had, new letters patent for the same invention were issued by the Commissioner of Patents of the United States to the said Tucker Manufacturing Company, as the assignee of your orator, which said reissued letters patent were in two divisions, each

upon a separate amended specification, bearing date Sept. 11, A. D. 1866, and numbered respectively reissued letters patent No. 2355 and No. 2356, signed by the Secretary of the Interior and countersigned and sealed with the seal of the Patent Office of the United States by the Commissioner of Patents, whereby there was granted to the said Tucker Manufacturing Company, its successors and assigns, for the residue of the term of seventeen years from the date of said original and surrendered letters patent, the full and exclusive right and liberty, not only of practicing said process, but of
19 making, using, and vending to others to be used, the said manufacture, as by said reissued letters patent or duly certified copies thereof in court to be produced will fully appear.

And your orator further shows that on the twenty-seventh day of August, A. D. 1872, the said Tucker Manufacturing Company, by an instrument in writing of that date, reassigned to your orator said reissued letter patent Nos. 2355 and 2356, and all rights and privileges thereby secured, which written assignment was duly recorded in the Patent Office of the United States, as by said instrument or a duly certified copy thereof in court to be produced will fully appear.

And your orator further shows that afterwards, to wit, on or about June 20th, 1876, by an instrument in writing of that date, he assigned both said reissued letters patent to Walter Curtis and Charles M. Reed, both of said Boston, as collateral security for the payment of certain indebtedness of your orator to them, and that on or about Jan. 29th, A. D. 1877, the said Walter Curtis having in the meantime deceased, and Benjamin R. Curtis having been duly appointed administrator of his estate, the said reissued letters patent and invention, and all rights of action and claims for damages and profits arising out of infringements upon said letters patent accruing after the said 27th day of August, 1872, were reassigned to your orator by said Charles M. Reed and said Benjamin R. Curtis, the latter acting as administrator as aforesaid, which instrument of assignment was duly recorded in the Patent Office of the United States, as by the same or a duly certified copy thereof in court to be produced will fully appear.

And your orator avers that, by reason of the above-mentioned assignments, not only said reissued letters patent and invention, but also all rights of action and claims for damages and profits arising out of infringements upon the same committed since the said twenty-seventh day of August, 1872, have become and now are fully vested in your orator.

And your orator further shows that on or about the third day of August, 1874, he filed his bill in equity in the clerk's office of this honorable court for the district of Massachusetts against the said Tucker Manufacturing Company, alleging that said Company
20 had, since its assignment of said letters patent to him, infringed upon the exclusive rights vested in him by said reissued letters patent No. 2355, by practicing the process for ornamenting iron in imitation of bronze therein described; that said company appeared and answered, denying that your orator was the original and first inventor of said patented process, denying the

validity of said letters patent, and denying that it had infringed the same; that a general replication having been filed, and a great amount of testimony having been taken in support of the issues raised by the pleadings, the said cause was fully argued by counsel upon the pleadings and evidence before the Hon. Nathan Clifford, associate justice of the Supreme Court of the United States, who thereupon decreed that the said letters patent were good and valid, and that the said Tucker Manufacturing Company had infringed the same, and also that said company should be perpetually enjoined from further practising said patented process, and should account for and pay over to your orator the gains and profits received by it through such infringements, as well as the costs of suit by him incurred, which decree was not appealed from, and was satisfied by the issuance and service of the writ of injunction therein granted, and the payment by said company to your orator of the sum of five thousand dollars in cash, in satisfaction of said profits and costs of suit, all of which will fully appear from the record in said suit now upon the files of this honorable court at said Boston.

And your orator further shows that afterwards, to wit, on or about April 24th, 1877, he filed his bill in equity in the clerk's office of the circuit court of the United States for the district of Connecticut, against P. & F. Corbin, a manufacturing corporation organized under the laws of the State of Connecticut, alleging infringement by said P. & F. Corbin of said reissued letters patent No. 2355, to which said P. & F. Corbin pleaded that it had done the acts complained of under and by virtue of a license granted to it by the owners of said letters patent; that issue being joined upon this plea and testimony taken, the cause was fully argued by counsel before the Hon. Nathaniel Shipman, one of the judges of said court, who thereupon decreed that said pretended license was null and void, that
21 said letters patent were good and valid, and that said P. & F. Corbin had infringed the same, and that said P. & F. Corbin be perpetually enjoined from practising said patented process, and that it account for and pay over to your orator the gains and profits received by it through such infringement and his costs of suit, which decree is still in full force, and the accounting therein directed still pending.

And your orator further shows that on the 5th day of July, 1879, he filed his bill in equity in the clerk's office of this court for the district of Massachusetts against Charles A. Burditt and Joseph Williams, of Boston, alleging infringement by them of both the letters patent aforesaid, and, after full argument by counsel upon the question of the validity of said letters patent reissue No. 2356 for said bronzed iron as a new article of manufacture, before Hon. John Lowell, judge of said court, an injunction was granted against said Burditt and Williams enjoining and restraining them from infringing either of said letters patent until further order of court, which injunction is still in full force and effect.

And your orator further shows that the new manufacture of iron, ornamented in imitation of bronze, specifically described and claimed as new in said reissued letters patent No. 2356, is the specific product

of the process therein described and specifically claimed as new in said reissued letters patent No. 2355, and cannot, to the best of his knowledge and belief, be produced by any process not substantially the same. He therefore submits that the effect of the above-mentioned decrees against said Tucker Manufacturing Company and said P. & F. Corbin and said Burditt & Williams is not only to establish the novelty of said process and the validity of said reissued letters patent No. 2355, but also to establish the fact that your orator was the original and first inventor of said new manufacture of iron specifically claimed in said reissued letters patent No. 2356 as aforesaid.

And your orator further shows that from and after the said twenty-seventh day of August, 1872, he was and still is possessed of the exclusive right and liberty of making, using, and vending to
22 others iron ornamented in imitation of bronze by the process described in said reissued letters patent, which exclusive right and liberty has been and still would be of great value to your orator but for the tortuous acts of the defendant hereinafter specified; yet the defendant, the said Sargent & Co., well knowing the premises, without your orator's consent and in violation of the exclusive rights conferred upon him by said reissued letters patent, has, since said last-mentioned date, not only used and sold large quantities of iron ornamented in imitation of bronze by the process described in said letters patent, but has practised said process extensively in the manufacture of various kinds of ironware, and still continues so to do, whereby the said defendant has infringed and is still infringing the exclusive rights intended to be secured to your orator by said reissued letters patent.

And your orator has requested the said defendant to acknowledge his rights in the premises and desist and refrain from further infringement upon said letters patent, and to account for and pay over to your orator what is justly due him on account of such infringements; but the said defendant has refused and still refuses so to do.

All of which acts and doings of said defendant are contrary to equity and good conscience and tend to the manifest injury of your orator in the premises;

To the end, therefore, that the said defendant may, if it can show cause why your orator should not have the relief herein prayed, and may, upon oath of its proper officers, and according to the best of their knowledge, remembrance, information, or belief, full, true, and perfect answer make to all and singular the premises.

And that the said defendant may be decreed to account for and pay over to your orator all gains and profits realized by it from the unlawful use by it of said invention as aforesaid in the manufacture and sale of iron ornamented in imitation of bronze by said patented process;

And that said defendant, its agents, attorneys, clerks, servants, and workmen, may be restrained by a writ of injunction, issuing out of and under the seal of this honorable court, from using said
23 patented process or any substantial and material part thereof, and from using or selling iron ornamented in imitation of bronze by said process, and that it may also be restrained and en-

joined during the pendency of this suit, and for such other and further relief in the premises as the nature of the case may require, and to your honors may seem meet.

May it please your honors to grant unto your orator not only writs of injunction conformable to the prayer of this bill, but also a writ of subpœna, directed to the said defendant, Sargent and Company, commanding it at a certain penalty therin to be limited by its proper officers, to be and appear before this honorable court, then and there to answer unto this bill, and to do and receive what your honors shall deem meet in the premises.

HIRAM TUCKER.
CHAS. M. REED.
Solicitor and of Counsel for Complainant, Boston, Mass.

UNITED STATES OF AMERICA, *District of* ——, } ss:

BOSTON, *Jan.* 5, 1880.

Then personally appeared the above-named Hiram Tucker, and subscribed the foregoing bill, and made oath that the statements therein made as of his own knowledge are true, and that those made upon information and believe he believes to be true.

Before me—

[NOTARIAL SEAL.] J. A. L. WHITTIER,
Notary Public, Suffolk Co., Mass.

23½ And on the same day a writ of subpœna issued out of court, directed to the said defendant, which was duly served and returned, and which, with the return of service endorsed thereon, was and is in the words and figures following, viz:

24 The President of the United States of America to the marshal [SEAL.] of the district of Connecticut, sendeth Greeting:

You are hereby commanded to summon Sargent & Company, a corporation organized under the laws of the State of Connecticut, and located and doing business in the city of New Haven, in the State and district of Connecticut, to appear before the judges of the circuit court of the United States of America for the district of Connecticut, in the second circuit, in equity, on the first Monday of February, 1880, wheresoever the said court shall then be, to answer a bill of complaint exhibited against said Sargent & Company in said court by Hiram Tucker, of Boston, in the district of Massachusetts, and then and there to answer the same, and to do and abide by what said court may order and decree in the premises.

Make due service and return at least twenty days before said first Monday of February, 1880.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at Hartford, this 6th day of January, A. D. 1880.

E. E. MARVIN, *Clerk.*

The defendant is required to enter its appearance in said cause

in the clerk's office of said court, on or before the day at which this writ is returnable, or, by the rules of said court, said bill will be taken as confessed.

E. E. MARVIN, *Clerk.*

WM. WALDO HYDE, Hartford, Conn.,
Complainant's Solicitor.

25 UNITED STATES OF AMERICA.

DISTRICT OF CONNECTICUT, } ss:
New Haven County, }

NEW HAVEN, *Jan'y* 8, 1880.

Then and there I served the within writ on Sargent & Company, herein named, by delivering to and leaving with C. L. Baldwin, the secretary of said company, a true and attested copy hereof.

Attest: JOS. D. BATES,
U. S. Marshal.

Fees:

Service	2 00
Copy	1 00
Travel	4 80
Hack	50
	8 30

26 And on the same day Wm. Waldo Hyde, Esq., entered his appearance for the complainant; and on the 26th day of January, 1880, John S. Beach, Esq., entered his appearance for the respondents; and on the 2d day of March, 1880, the respondents filed in court their answer in the words and figures following, viz:

27 *Defendants' Answer.* (*Filed March* 2, 1880.)

Circuit Court of the United States, District of Connecticut. In Equity.

HIRAM TUCKER *v.* SARGENT & CO.

The answer of Sargent & Company, defendants, to the bill of complaint exhibited against them by Hiram Tucker.

To the honorable Judges of the circuit court of the United States for the district of Connecticut:

The defendants, reserving all advantage and benefit of exception to said bill of complaint, for answer thereto or to so much thereof as they are advised it is material for them to answer unto, answering, say:

That they are informed and admit that letters patents of the United States were on the the 15th day of December, 1863, issued to the complainant for an alleged invention in the art of coloring iron, and that the same was afterwards surrendered and reissued in two parts, as alleged in said bill, and numbered respectively 2355 and 2356; but the defendants have no knowledge, save as is imparted to them by the allegations of said bill, of the assignments of said original

letters patent, or of said reissues, or of either of them, and leave the complainant to the proof thereof, and they have no knowledge, except as derived from the allegations of said bill, of the institution, progress, or result of the several suits which said bill alleges have been brought by the said complainant against "The Tucker Manufacturing Company" and Burditt & Williams in the United States circuit court for the district of Massachusetts, and against P. F.
28 Corbin, in the United States circuit court for the district of Connecticut, and leave the complainant to such proof thereof as he may be advised; but, upon information and belief, they deny the allegation of said bill that the coloring of iron, as described and claimed in said reissued letters patent, cannot be produced by any process other than that therein described; and they deny that the effect of any decree in either of the above-mentioned cases was to establish the validity of said letters patent as against these defendants, or to abate their rights.

And these defendants, further answering, admit that the said original letters patent issued to the said complainant, and bearing date December 15, 1863, were inoperative and void by reason of a defective specification, as set forth in said bill, in that the specification was vague and uncertain and defined no limits as to quantity of oil or the thickness of the coating to be applied, and gave no such clear direction as to the application or use of the alleged new process as to enable a person skilled in the art to which it relates to practise the same; but, upon information and belief, they deny that the said original letters patent were for that reason surrendered, but on the contrary they allege that the said surrender was made and said reissue obtained for the purpose of covering, as the invention of the complainant, what was not described or claimed in said original letters patent as the invention of said complainant, and they aver that said reissued letters patent are void:

1st. As exhibiting the same vagueness and uncertainty of description which nullified said original letters patent.

2d. As being for a different invention from that described and claimed in the said original letters patent.

3d. As purporting to secure exclusive rights which, in their nature, are not patentable.

And the defendants, further answering, deny that they have used the process described in said letters patent, or sold any articles of iron colored thereby; and if it shall be claimed by the said complainant that these defendants have, in the process of coloring iron used by them, infringed upon any of the exclusive rights purporting to be secured by said letters patent, then the defendants
29 will maintain that upon any construction thereof covering the process used by the defendants in coloring iron said letters patent are void:

1st. Because such process was in public use, and the articles colored thereby were on sale in this country, with the knowledge and consent of the said complainant, more than two years prior to his application for said letters patent.

2d. Because such process was in public use and the articles col-

ored thereby were on sale in this country for more than two years prior to the application for said letters patent.

3d. Because the said Hiram Tucker was not the first and original inventor of said process, but the alleged invention, including all such portions thereof as the defendants are alleged to have infringed, was at the date of the supposed invention an old process well known in the art of coloring metal, and long prior to any supposed invention thereof by the said Tucker, and long prior to his application for letters patent thereon, was known to and in use by persons other than the said Tucker, whose names and residences and the places where used by them respectively are set forth in schedules hereto annexed, marked A and B, and forming part of this answer, and was also fully described in certain public works and letters patent, as set forth in schedule hereto annexed, marked C, and forming part of this answer.

SCHEDULE A.

Name.	Residence.	Place where used.
Purmont & Bradford	New Haven,	New Britain, Conn.
Peck & Walter M'f'g Co.	New Britain,	
J. B. Sargent	New Haven,	
J. B. Sargent & Co.	New Britain,	
Sargent & Co.	New Haven,	
Fred'k W. Brockseipier	North Haven,	
Morton Sudd	Wallingford,	Wallingford and New Britain.
Oliver S. Judd	New Britain,	

30 SCHEDULE B.

James G. Smith, J. C. Smith, Paul Schieltze, Edwin R. Augevine, and Joseph Flynn, all of Middletown, Conn., at said Middletown and Westfield, in said State; Frederick Mallory, of New Haven, in said State, at said New Haven; W. Fitch and John Gusel, of and at said New Haven; H. L. Judd, of Wallingford, at said New Haven and Wallingford Conn.; Rodolphus L. Wett, Horace Eddy, Russell & Erwin Manufacturing Company, and Landers, Frary & Clark, of and at New Britain, Conn.; Henry Whitely, of Cambridge, Mass.; Luther F. Whitney, of Charlestown, Mass.; Edmund W. Drake, of Somerville; Robert Murphy, of Chelsea; Frederick Smith, of Somerville, and John W. Talbot, of Charlestown, all in said district of Massachusetts, at Boston, in said district; Nathaniel Bradley, Walter Hubbard, Lewis J. Roselins, Abel H. Snow, Elias K. Breckenridge, and Hugh Mulvey, all of and at Meriden, in the State of Connecticut; John M. Spring, Charles Peck, both of and at New Britain, Conn.; Burton Mallory, William Ronalds, William H. King, William Leboyd, Samuel Barton, Daniel Wright, and Henry Talmadge, all of and at New Haven, in the State of Connecticut; Charles M. Daboll, G. A. W. Rogers, William Clark, B. F. Barker, E. H. Douglass, Increase Wilson, and the Wilson Manufacturing Company, all of and at New London, Conn.; Henry H. Elwell, of Norwalk, Conn., at said Norwalk and Meriden; Emory Parker, of New Britain at Meriden and

New Britain, and Daniel Fowler, of Meriden, Conn., at said Meriden; Lemuel Morgan, of New York city, at said Meriden; Richard Eatabrook, of and at Camden, in the State of New Jersey; Horace M. Hedden and George M. Hedden, both of and at Worcester, in the State of Massachusetts, and Newark, New Jersey; Luther Grover, J. & J. Berry, William Park, John E. Blakemore, all of and at Boston, in said State of Massachusetts.

31 SCHEDULE C.

On pages 181 and 182 of a book entitled "A Narrative of the Building, and a Description of the Construction of the Eddystone Light-house with Stone, * * * by John Smeaton," etc., published at London, 1813; and also on pages 559 and 560, in an article headed "Japanning," beginning on page 7 and ending on page 12 of volume II of a work in two volumes, entitled "The Engineers' and Mechanics' Enclyclopedia, * * * by Luke Herbert," etc., published at London, 1842; and, also, on pages 467 to 474, inclusive, of the first volume of a work printed in the German language, entitled "Handbuch der Mechanischen Technologie, * * * von Karl Kammarsch," which, being translated, is "Manuel of Mechanical Technology, * * * by Karl Kammarsch," published at Hanover, 1857; "Enclyclopedia of Useful Arts, Mechanical and Chemical," edited by Charles Tomlinson, and published in two volumes at London and New York, 1854. On page 384 of the second volume is an article beginning on page 382 and headed "Pens."

The defendants reserve the right to add to and amend said Schedules A, B, and C, within the period limited by law for that purpose, and they pray that they may have the same advantage of the facts hereinbefore stated, and the same benefit of the allegations of this answer, as if the same had been specially pleaded; and they deny that any matter or thing in said complainant's bill contained, and not herein and hereby well and sufficiently answered, is true to the knowledge and belief of the defendants; and they pray to be hence dismissed, with their reasonable costs and charges.

SARGENT & CO.,
By J. B. SARGENT, *President.*

JNO. S. BEACH,
Solicitor and of Counsel.

32 UNITED STATES OF AMERICA, }
District of Connecticut, } *ss:*

NEW HAVEN.

On this first day of March, 1880, before me comes Joseph B. Sargent, who, being duly sworn, deposes and says that he is the president of the corporation Sargent and Company; that he knows the contents of the foregoing answer, and that the matters therein set forth, so far as they are stated to be within the knowledge of the defendants, are true, and as to all other matters therein set forth he believes them to be true.

JOHN B. MILLS,
Notary Public.

And on the 3rd day of April, 1880, the complainant filed in court his replication to said answer in the words and figures following, viz:

33 *Complainant's Replication.*

Circuit Court of the United States, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & CO.

This repliant, saving and reserving to himself all and all manner of advantage of exception which may be had and taken to the manifest errors, uncertainties, and insufficiencies of the answer of the said defendant, for replication thereunto say that he does and will aver, maintain, and prove his said bill to be true, certain, and sufficient in the law to be answered unto by the said defendant, and that the answer of the said defendant is uncertain, evasive, and insufficient in the law to be replied unto by this repliant, without this, that any other matter or thing in the said answer contained material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied, is true; all which matters and things this repliant is ready to aver, maintain, and prove as this honorable court shall direct, and humbly prays, as in and by his said bill he has already prayed.

By his solicitor, CHAS. M. REED.
WM. WALDO HYDE,
Solicitor of Record.

33½ And on the 20th day of November, 1880, the defendant filed an amendment to his answer, in the words and figures following, viz:

34 *Amendment of Answer.* (*Filed Nov.* 20, 1880.)

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *v.* SARGENT & CO.

The defendants, in pursuance of leave of court for that purpose, amend their answer as on file by inserting between the paragraph of said answer (No. 3), which contains a reference to schedules A, B, and C, and said schedules, as follows:

"4. Because that long prior to the supposed invention of said Tucker articles of iron bronzed by process claimed in said patent were manufactured by Wilhelm Graff, Gottich A. Erhardt, Otto North, Heinrick Holsmuller, all of Berlin, in the Kingdom of Prussia, at said Berlin; E. C. Zimmerman, of Frankfort-on-the-Rhine, at said Frankfort, and at Hannan, in the Kingdom of Prussia, the Royal —— of Berlin, in the Kingdom of Prussia, at said Berlin, and were imported into the United States and known to and used and sold by the following-named persons and firms at the city of New York:

C. F. A. Henricks, of No. 367 Henry street, in the city of Brooklyn, New York.

Hartley & Graham, and Schuyler, Hartley & Graham, of the city of New York.

Stephen Pell, of 148 Main street, Brooklyn, New York.

John Wilcox, of No. 73 Christopher street, New York city.

L. I. Kalemberg, of 125 Fulton street, city of New York.

Dated at New Haven, November 19, 1880."

SARGENT & CO.,
By J. B. SARGENT, *President.*

JNO. S. BEACH,
Solicitor and of Counsel.

35 Sworn to as being true to the best of his knowledge, information, and belief, by Joseph B. Sargent, president of said Sargent & Co.

CHAS. L. BALDWIN,
Notary Public.

35½ And on the 15th day of June, 1881, complainant's and defendants' evidence was filed in the words and figures following, viz:

36 In the Circuit Court of United States for the District of Connecticut.

HIRAM TUCKER *v.* SARGENT, &c.

Evidence for complainant, taken pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, John C. Lane, special examiner.

OCT. 12, 1880.

(Hiram Tucker, being first duly sworn, in answer to direct examination by Elihu G. Loomis, Esq., of counsel for complainant, saith as follows:)

Question 1. What is your name, age, residence, and occupation?

Answer. Hiram Tucker; age 57; reside in Boston; manufacturer.

Q. 2. Are you the complainant in this case?

A. I am.

(Examination suspended.)

37 Complainant offers in evidence a certified copy of reissued letters patent of the United States, number 2355, granted to the Tucker Manufacturing Company, dated September eleventh, 1866, for "Improved Process of Bronzing or Coloring Iron," marked Tucker "Exhibit A A, John C. Lane, Spec. Ex'r;" also a certified copy of reissued letters patent of the United States, number 2356, granted to the Tucker Manufacturing Company, dated September eleventh, 1866, for "Improved Manufacture from Iron in Imitation of Bronze," marked "Tucker Exhibit B, John C Lane, Spec. Ex'r;" also a certified copy of an assignment of said patents from

said Tucker Manufacturing Company to said Tucker, dated August twenty-seventh, 1872, recorded libro A 18, page 454, of Transfers of Patents in the Patent Office of the United States; also a certified copy of an assignment of said patents from said Tucker to Walter Curtis and Charles M. Reed, dated June twentieth, 1876, recorded libro V 20, page 175 of said Transfers of Patents; also a certified copy of an assignment of said patents from Benjamin R. Curtis, as administrator of the estate of Walter Curtis and Charles M. Reed, to said Tucker, dated January twenty-seventh, 1877, recorded libro H 21, page 282 of said Transfers, marked "Tucker Exhibits C, John C. Lane, Spec. Ex'r;" also three buts, marked "Tucker Exhibit A, Feb'y 25, 1880, Geo. L. Huntress, Notary Public"—"Tucker Exhibit D, John C. Lane, Spec. Ex'r;" and "Tucker Exhibit D D, John C. Lane, Spec. Ex'r;" and said counsel for complainant states that if the defendants do not admit that said Exhibits A and D and D D are goods manufactured and sold by them, evidence of such manufacture and sale will be hereafter offered.

(Examination resumed.)

Q. 3. Please state briefly what degree of familiarity you have with the use of oils and varnishes and with the various processes for ornamenting iron in common use.

A. I have had more than thirty years' experience in using these substances for the purpose of covering and ornamenting iron by means of heat. I have also had large experience in the manufacture of japans and varnishes.

38 Q. 4. What practical experience have you had in the use of the process described in the letters patent here in suit?

A. I have had more or less experience in making Tucker bronze for eighteen years and consider, myself thoroughly versed in everything that relates to that process.

Q. 5. What practical experience have you had of the effects of different degrees of heat on oils, varnishes, and japans, when spread upon metallic surfaces?

A. More than thirty years' experience in the use of those substances for covering iron by means of heat.

Q. 6. Will you examine these exhibits, marked Tucker Exhibits "A," "D" and "D D," in this cause and state whether or not they are substantially the same as the bronzed iron described and claimed in your patents in suit?

A. I consider them to be substantially the same thing.

Q. 7. Will you give your reasons for such opinion?

A. This pair of butts, Exhibit D, appear, after being fitted and while in the rough state, to have been coated over with either a strong boiled oil or a thin coating of brown japan and then submitted to a degree of heat sufficient to solidify the same and modify, to some degree, its color. The face of the butts then appear to have been ground and smoothed by a fine emery wheel. The butt was then placed in a furnace heated sufficiently to raise a dark brown color upon the surfaces so ground or smoothed The butt, after being removed from the oven and cooled, appears to have had ap-

plied to it a thin coating of oil copal varnish. After such coating of varnish was applied it appears to have been replaced in the oven, previously heated to a high degree of heat, and there remained until the varnish became solidified and modified in color, after which it was removed and was then completely finished, ready for the market. Although this process consists of two steps instead of one, as described in the patent, I consider it substantially the same for the reason that it produces the same result, to wit, a surface on the iron which is composed of oxidized or modified oil, or
39 oil varnish (which is the same thing for the purpose of practising this invention), and oxidized iron, both produced by means of heat. The same remarks will apply to Exhibits D D and A.

Q. 8. Are you or not, from your knowledge of the art of ornamenting iron, enabled to say positively that the three exhibits just referred to were ornamented by substantially the process which you have described?

A. I am.

Q. 9. Have you read that portion of the affidavit of Henry B. Sargent before filed in this case which describes the process employed by Sargent & Company in the finish and ornamentation of butts?

A. I have.

Q. 10. Whether or not said affidavit confirms your opinion that these goods were finished by substantially the same process as that described and claimed in your patents in suit?

A. Yes, for the reason that the process he has described for coloring and covering the ground surfaces of his butts is substantially the same as I have described as being practised on Exhibits D, A, and DD, and I have testified already that that process is substantially the same as is described in my patents here in suit.

Q. 11. Will you prepare a piece of Tucker bronze, following strictly the specifications of your patents, and produce it at the time and place to which this examination shall be adjourned?

A. I will.

(Examination suspended.)

Complainant offers in evidence a certificate of the appointment of Benjamin R. Curtis as administrator of the estate of Walter Curtis, under the seal of the probate court of Suffolk county, in the Commonwealth of Massachusetts, marked "Exhibit E, John C. Lane, Spec. Ex'r."

OCT. 13, 1880.

40 Complainant puts in evidence a specimen of Tucker bronze, as promised in his eleventh answer, marked "Tucker Exhibit F, John C. Lane, Spec. Ex."

(Examination resumed.)

(And in answer to cross-examination by C. E. MITCHELL, Esq., of counsel for respondents, saith as follows:)

Cross-question 1. State whether the title exhibits placed in evi-

dence in connection with your testimony constitute all the contracts to which you are a party relating to the letters patent in controversy, or to rights of recovery, or to moneys recovered under the same.

A. To the best of my knowledge and belief, yes.

Cross-Q. 2. Have you not signed a contract of the kind referred to in the last question since the date of the last deed contained in Tucker "Exhibit C"?

A. I have.

Cross-Q. 3. Will you produce the same, or a copy thereof, for use in this case?

A. I cannot say whether I will or not until I have consulted my counsel, Mr. Reed. I understand by the question, however, that it refers to a contract made between myself and the Tucker Manufacturing Company and William H. Plummer, which does not affect my title to the patent, as I understand it.

Cross-Q. 4. Does not the contract that you referred to in your last answer, and you are right in understanding it to be the one I referred to, vest in the Tucker Manufacturing Company and William H. Plummer the whole or part of the title to any money that may be recovered for alleged infringement in this case?

A. They are entitled to eighty per cent. of the proceeds which may accrue from any litigation of said patent until their claims against me are satisfied, said claims amounting, at the time the contract was made, to some twenty-four or five thousand dollars.

(Counsel for respondent here calls upon counsel for complainant to produce said instrument or a copy thereof.)

41 Cross-Q. 5. No reply being made to my request for said instrument, will you please state fully and in detail every particular of said instrument?

A. I decline to do so at this time, for the reason that my counsel, who has this case especially in charge, is ill and not able to be present. I see no particular reason why I should not give the details in regard to this contract, as I have already given the substance, but not knowing exactly what the effect of a full answer may be to the last interrogatory, I prefer to wait for Mr. Reed's advice.

(Counsel for respondent states that, in view of the last answer, he will defer cross-examination upon this point for the present and renews his demand for the production of said instrument, claiming that the legal effect thereof is to vest a title in equity in the persons named in answer to cross-question 3.)

Cross-Q. 6. In the deed from the Tucker Manufacturing Company to you, dated August twenty-seventh, 1872, I find enumerated among the patents conveyed by said instrument not only the reissues in controversy, but also letters patent, number 90891, dated June first, 1869, for an improvement in coating articles of ironware. What was the improvement described in those letters patent?

(Objected to as incompetent and immaterial.)

A. I am not able to state with accuracy just what that patent related to or, more properly speaking, just what the improvement set forth in that patent consisted in. It is many years since I have read it.

Cross-Q. 7. You were the patentee, I believe, of the last-named patent, were you not?

(Objected to for same causes.)

A. I was.

Cross-Q. 8. It related to the use of copal varnish for coating articles of ironware, did it not?

(Also objected to for same reasons.)

A. My memory of dates is so defective, and have taken out so many patents for improvements in finishing iron, that I am
42 not able to state whether this patent under discussion was the one that related to covering articles that had been Tucker bronzed with varnish. I remember of taking a patent, however, for that so-called "improvement."

Cross-Q. 9. To the best of your knowledge, information and belief, was not the patent of June first, 1869, the patent taken out by you for coating with copal varnish articles previously ornamented in imitation of bronze by oil and heat in accordance with your previously patented process?

(Objected to as before.)

A. I have no reason to doubt but what that was the fact, but I cannot swear to it at this moment.

Cross-Q. 10. Assuming that to be true, of which you say in your last answer you have no reason to doubt its truth, please state whether I am correct, substantially, in the following statement of the three inventions referred to in the deed from the Tucker Manufacturing Company to you dated August twenty-seventh, 1872:

First. A process of ornamenting iron in imitation of bronze by oil and heat by removing sand, scale, or other foreign matter, then applying to the cleansed surface such a thin film of linseed oil, or equivalent oil, as is best attained by applying the oil with a brush and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement, and then placing it in an oven where it is submitted to a degree of heat which may be measured by an intensity sufficient to change a brightened surface of clean unoiled iron to a color varying from a light straw color to a deep blue, then repeating the process if desired.

Second. An alleged new manufacture consisting of iron ornamented in imitation of bronze by oil and heat in the manner described.

Third. A patent for outer coating with copal varnish articles ornamented in imitation of bronze, treated by the process before described.

(Objected to as before.)

A. Yes.

Cross-Q. 11. Was the third patent referred to in the last
43 question in evidence in the case of Tucker against the Tucker Manufacturing Company tried before Judge Clifford in this circuit?

A. No; it was not.

Cross-Q. 12. Tucker Exhibit F, I understand, is a piece of iron ornamented in accordance with the process described in your patent numbered 2355, is it not?

A. It is.

Cross-Q. 13. Please describe in detail the way in which you produced the surface of Tucker Exhibit F.

A. This Exhibit was first polished on an emery wheel, then oiled over with boiled linseed oil by rubbing the same on with the finger, then afterwards rubbing it off with a rag, then placed in a regular bronzing oven, one end of the exhibit resting upon the bottom of the oven nearest the fire, and allowed to remain until the color appeared as now seen on said exhibit, with the exception of it being somewhat lighter in shade. It was then removed from the oven, allowed to cool, oiled again in the same manner by rubbing with the finger, the surplus oil rubbed off with fine tissue paper; the piece was then replaced in the oven, hung about the centre of the same by being suspended on a wire, and allowed to remain for an hour, more or less, until it assumed the character and appearance now seen.

Cross-Q. 14. What was the heat to which the oiled iron was subjected at each repetition of the process in producing Tucker Exhibit F?

A. I am not able to state specifically. I am sure that at the first heating the heat used was over four hundred degrees Fahrenheit, and, according to my best judgment, at the second heating was about four hundred; might have been some less.

Cross-Q. 15. As I understand you, the heat at the second heating was sufficient to deepen the color of the iron?

A. I should judge it was.

Cross-Q. 16. And it was sufficient to produce upon clean unoiled iron the color prescribed by your patent as a test, was it not?
44 A. I have no doubt of it.

Cross-Q. 17. Was the effect of your rubbing on the oil with your finger to fill the pores of the iron somewhat more satisfactorily than they would have been filled by application with a brush?

A. I don't think it made the slightest difference, as the office of the brush or finger is only to lay on a quantity of oil, which in both cases is rubbed off thoroughly with a rag or paper afterward.

Cross-Q. 18. When rubbed off thoroughly with the rag or paper, I suppose the substantial portion of the oil remaining is in the pores of the iron, is it not?

A. I never examined the work critically for the purpose of ascertaining that fact, but should think from ordinary inspection, after rubbing off the oil, that it was pretty fairly distributed over the whole surface.

Cross-Q. 19. And the effect of applying the prescribed degree of

heat to the iron oiled as described is to produce a new surface to the iron, is it not?

A. It is.

Cross-Q. 20. And that surface is a single surface bronze-like in color as ordinarily oiled and heated, but capable of being made a black by repetition of oiling and heating without changing the process, am I right?

A. You are.

Cross-Q. 21. Why did you limit the third patent referred to to outer coating articles of "Tucker bronze" with copal varnish. Why did you not include all metallic surfaces?

(Objected to as aforesaid.)

A. For the reason when that patent was taken I was inexperienced and had but very little knowledge about such matters. I began to use varnish after my return from Europe in 1867, when I found large quantities of work imperfectly done, with a poor quality of oil, and adopted varnishing said work and heating the same as an expeditious way to get over the difficulty. I found that the varnishing had a good effect for cheap work, thought possibly it might be covered by a patent. Causten Browne, Esq., of Boston, advised me that it was the subject of a patent, and at his suggestion the claim was broadened beyond what was my judgment at the time, and has always been my judgment since that it ought to have been—that is to say, it was broadened to cover simply varnishing without heat. I have never considered the patent worth a rap on that account.

Cross-Q. 22. Your judgment is and always has been, then, that the claim should have been limited so as to include the application of varnish by heat only?

(Objected to as irrelevant, incompetent, and immaterial.)

A. My judgment is, and has been ever since I have had knowledge of patent matters sufficient to discriminate between what was patentable and what was not, that there was not the slightest foundation to support any such claim as is put forth in that patent, or any claim that will relate to varnishing the surface of bright iron and solidifying or coloring the same by heat, in view of my former patents.

Cross-Q. 23. You say, in reply to cross-question 21, that at the suggestion of Causten Browne "the claim was broadened beyond what was my judgment at the time." What was your judgment at the time as to the proper limitation of the claim. Am I right in understanding that, in your judgment at the time, it should have been limited to the application of varnish by heat?

(Objected to as before.)

A. I had a vague idea at the time said application was made that a patent would be valid for baking a coat of varnish over work done by the Tucker bronze process, so called—that is, that it would be a combination patent; that was as it lay in my mind at the time.

Cross-Q. 24. You knew that it had been customary in the arts to bake copal varnish onto metallic surfaces prior to the date of your original invention, did you not?

A. If I understand your question to mean placing copal varnish onto bright metallic surfaces directly and than baking the same, I did not.

46 Cross-Q. 25. To give a single illustration, you knew that copal varnish had been baked upon the bright surface of tin long before the date of your process, as discovered by you, did you not?

A. I did not.

Cross-Q. 26. Do you regard English brown varnish, applied in the manner described in your patents in suit, and subjected to the heat prescribed by said patents, as the equivalent for linseed oil?

A. I doubt very much whether it would be practical to treat iron with English brown varnish in the way specified in the patent for treating the oil; if it could be, it would be within my patent undoubtedly.

Cross-Q. 27. If it could not be applied in the precise way prescribed in your patent, would you regard it as an equivalent, say, if it were applied by diluting it with turpentine or benzine?

A. I should, for the reason that English brown varnish is composed almost entirely of linseed oil which has been boiled to a paste and diluted with spirits of turpentine. When a thin coat of this material is placed over the surface of bright or polished iron, and then submitted to such a heat as is described in the patent here in suit, and for a length of time sufficient to raise an oxide or change of color on the surface of the iron, which shall combine in some degree with the baked brown varnish which was placed upon the iron previous to its being heated, it constitutes the new surface, or the distinctive features of this invention.

(Examination suspended.)

(Examination resumed.)

OCT. 22, 1880.

Cross-Q. 28. You say, in reply to question 7, among other things, "this pair of butts (Exhibit D) appear, after being fitted and while in the rough state, to have been coated over with either a strong boiled oil or a thin coating of brown japan." Are you quite sure that this first coat did not consist of black japan?

47 A. I feel quite sure I was right in my statement that you have just quoted, but I won't say that I am absolutely sure.

Cross-Q. 29. Whichever was the case the maker had a right to use such coating, I suppose?

A. He had not a right to use it if the sand and scale had been removed from this groundwork before applying the coat of boiled oil or thin brown japan, or a mixture of the two, and heating it in such a heat as described in the patent. I do not claim it to be an infringement of my patent if this brown color which appears on the groundwork of this butt is produced by colored pigments alone.

Cross-Q. 30. Do you understand that more than one coat of either

black japan, or brown japan, or strong boiled oil, as the case may have been, was used in producing the groundwork of Exhibit D—I call it black groundwork?

A. I don't think there was more than one coat used before the grinding off the salient surfaces.

Cross-Q. 31. Inasmuch, then, as your patent prescribed several repetitions of the process in order to produce a black, it follows, does it not, that if a black color was produced on the groundwork of Exhibit D by a single coat, at a single baking, your process was certainly not used prior to the grinding of the salient faces?

A. No, that does not follow. You state that you say that this groundwork is a black; I do not see it to be so, but should call it brown, and such a brown as is produced by first removing the sand and scale by a pickle made from sulphuric acid and water. When a thin coating of such a material as I have described as being used on this groundwork in question is placed over a surface so treated, from which the sand and scale has been removed by pickle, the result is always the same as appears on this groundwork in question.

Cross-Q. 32. You understand, do you not, from the affidavit of Henry B. Sargent, to which your attention was directed, in reply to question 9, that according to his statement, butts of the
48 defendants' manufacture are first covered with a black japan?

A. I do so understand it, and I have not the slightest doubt but what the groundwork of the butt which he put in as an exhibit was done with black japan. It appeared to me so when I made an examination of said butt. The color and texture of that groundwork appeared different altogether to me from the groundwork on this Exhibit D.

Cross-Q. 33. If Mr. Henry B. Sargent's statement in his affidavit referred to in question 9 as to the use of black japan for the groundwork is correct, such use does not involve your process, does it?

A. It does not.

Cross-Q. 34. If, then, the process described by Henry B. Sargent as to producing the groundwork does not involve your process, and if, as you say in reply to question 10, "the process he (Henry B. Sargent) has described for coloring and covering the ground surfaces of his butts is substantially the same as I have described as being practised on Exhibits D A and D D,"—how can the process you have described as the one by which the groundwork was applied be within the patent? Can two processes for producing the groundwork upon butts be substantially alike and one of those processes be within your patent and the other without your patent?

A. To answer the latter part of your question first, I will say no, they cannot be substantially alike and yet there be a patentable difference. As I understand these two groundworks, and I call them two, because on inspection they appear to be so, the color on one of them is produced by the black japan, without regard to the heat, while the color on the groundwork on these Exhibits D is produced by the action of heat on the thin coating of boiled oil, or light brown japan, or a mixture of both, as the case may be, combined with the

dark color of the iron left by the pickle. I do not say absolutely that I am right in the supposition that this groundwork on
49 these Exhibits D is produced as I have supposed, but for the purpose of this answer I take it for granted that it is so.

Cross-Q. 35. Inasmuch as in reply to question 9 of your direct testimony you refer to no exhibit made or filed by Henry B. Sargent, and inasmuch as in my cross-examination I have referred to no such exhibit, and inasmuch as no such exhibit is before us for inspection or comparison, and inasmuch as I don't know to what exhibit you allude and inasmuch as all such exhibits are, or ought to be, in the clerk's office at Hartford, you will please excuse me if I don't follow you in this digression. Now, to repeat in another form what I have said, I understand you to say, in reply to question 9, that you have read the affidavit of Henry B. Sargent, before filed in this case, which describes the process employed by Sargent & Company in the finish and ornamentation of butts. I understand you also to have said that, according to his description of that process, the groundwork is produced by baking on black japan. I understand you also to have said that, if the groundwork is produced as he described it, [it] does not involve the use of your process. I understand you also to say that the process he has described is substantially the same as you have described. How, then, can one be within the patent and the other without?

A. To answer the latter part of your question first, I will say that I never have described or admitted that these two processes now under discussion were substantially or at all alike. One is a process for producing color and surface by means of oil and heat used thinly over iron from which the sand and scale has been removed, as I understand it. The other process, to wit, that described by Henry B. Sargent in his affidavit, on which you have examined me (and this exhibit of H. B. Sargent referred to in his affidavit) consists in a groundword of thick black japan, the iron underneath forming no part of the color. I have read H. B. Sargent's affidavit and think I understand the process therein described fully, and I believe the black japan on said exhibit is correctly described in his affidavit.

50 Cross-Q. 36. You would not be willing to say, would you, that the pigmenty looking opaque coating on Tucker Exhibit D D where the words occur, Pat'd Nov. 21st, 1871, was produced by a single application of an oily film and heat in the way described in your patent, would you?

A. I wouldn't consider it of the slightest consequence whether it was or not, as this surface is so rough and spongy as to be of no value as an ornamental surface, only in contrast and as a groundwork in connection with bright surfaces, as appears on this exhibit. All such surfaces are very deceptive, and I am not willing to swear whether it is or is not such a surface as is described in the patent. To repeat, perhaps, what I have said before, such a surface is of no possible value, taken by itself as an ornamental surface.

Cross-Q. 37. Inasmuch as you are not willing to swear whether it is or is not such a surface as is described in the patent, may we not

agree in regarding the alleged infringing butts as not involving the patented process up to the time of the grinding of their salient faces?

A. I decline to agree to any admission. My testimony already given will be a sufficient reason for so declining.

Cross-Q. 38. Do you, as an expert, swear that the alleged infringing butts were subjected to your process prior to the grinding of their salient faces, and do you, as an expert, swear that the dark groundwork on the alleged infringing exhibits was not produced, in whole or in part, by pigments?

A. If my suppositions in regard to this exhibit in question are right, I should say my patented process had been practised, and I should say if there were any pigments used in the solution they had so slight an effect as not to affect the result to any material degree.

(Objected to as irresponsive.)

Cross-Q. 39. Inasmnch as, in reply to cross-question 36, you say referring to such surface, "I am not willing to swear whether it is or is not such a surface as is described in the patent," I suppose you are unwilling to swear whether your supposition is correct or not?

51 A. In the answer from which that quotation is taken I was swearing as to one small particular spot, which for some reason appears to be more heavily coated, I presume with the outer coat of varnish, and has a different appearance from what the other matted groundwork in this butt has. That spot, taken by itself, as I said before, is confusing, but taking the two long strips of matted work on the outside of this butt, I should say, according to my best judgment, they come within the patented process.

Cross-Q. 40. Please answer whether or not the color of the groundwork on the alleged infringing butts is produced wholly or in part by pigments?

A. If there was any pigment in the oil, I don't think it had any substantial effect in producing the color.

Cross-Q. 41. Please state whether or not there were any pigments in the coating by which the groundwork was produced on the alleged infringing butts.

A. I do not know whether there was or was not.

Cross-Q. 42. Are you able to say for a certainty that the dark groundwork on Tucker Exhibits D D D, and A were produced otherwise than by baking on a black japan, and if such japan were employed, might not the difference in shade be owing to the varying action of the yellow coat of baked varnish placed above it, or some other cause consistent with its being a japan coat?

A. To the first question, I am; to the second question, it would not. I will state that this groundwork under discussion is precisely the same in texture and appearance and in all its characteristics with the groundworks on all Tucker bronzed goods that have ever been made of which I have had knowledge and experience since the discovery of this invention was first made by me.

Cross-Q. 43. If, then, Sargent & Company have never made any

imitation bronze butt excepting those whose groundwork was produced by baking a black japan, you would be willing to swear that these butts were not Sargent's goods, would you?

52 A. I should like to know before I answer that question (if it's proper for me know as an expert) what you mean by a coating of black japan. If it is meant ordinary coating of thin black japan, baked on in the usual way, or by any degree of heat, I shall say such a coating has nothing whatever to do with my patent here in suit; but if counsel for the defendants mean a coating of extremely thin dark-colored japan, which when placed over the groundwork produces no substantial color, and then submitted to a heat such as is described in my patent, such heat coloring the coating and modifying to some degree the iron in connection with it, that would be an infringement on my patent, as I understand it.

(Objected to as irresponsive.)

Cross-Q. 44. You have testified that if Mr. Henry B. Sargent has correctly described the process of producing the groundwork on defendants' butts, such application was not within your process. If all the butts made by Sargent & Company having salient faces had their groundwork produced as he describes, then would you be willing to swear that the alleged infringing butts were not made by the defendants?

A. I shouldn't want to swear anything about it.

(Examination suspended.)

(Examination resumed.)

Oct. 23, 1880.

Cross-Q. 45. If Mr. Henry B. Sargent is correct as to the groundwork of the alleged infringing butts being made as he states and the salient faces are then ground away, there is nothing up to that stage that contains your process, even from your standpoint, I suppose?

A. I answered that question particularly and fully. There is an ambiguity in Mr. Sargent's description, if I understand it and remember it correctly—that is to say, he doesn't say in his affidavit how thick or thin he uses the japan, or whether the groundwork has been treated by removing sand or scale before so treating. Those are conditions I should wish to be informed about before giving a yes or no answer to your interrogatory. Further than this, I do not

53 remember (although he may have done so) that he stated the degrees of heat used in the process for producing said groundwork.

Cross-Q. 46. I understood from your answer to questions 9 and 10 of your direct examination that you were conversant with Henry B. Sargent's description contained in his affidavit, which is that the sunken parts of the butts were first covered with a black japan, that this coat of blacking was baked in an oven at a temperature not exceeding 320°. Do you claim that process so described to be within your patent?

A. I do not.

Cross-Q. 47 And the grinding off of the salient faces afterward would not involve your process up to that stage either, would it?

A. It would not.

Cross-Q. 48. And the production of the color by heat alone upon the unoiled ground faces would not involve your process, up to that stage?

A. It would not.

Cross-Q. 49. The next step, as I understand, is the application of a copal varnish. What mineral ingredients, in your judgment, are contained in the copal varnish upon Exhibits D and D D?

A. I should say, practically none.

Cross-Q. 50. What mineral ingredients, in your judgment, are contained in said varnish?

A. Practically none.

Cross-Q. 51. (Question repeated.)

A. Copal varnish, as I understand it, will not hold in solution a mineral ingredient. All minerals that I know anything about which are used in copal varnish are used for the purpose of clarifying and imparting drying qualities, and the minerals invariably settle to the bottom.

Cross-Q. 52. What minerals, in your judgment, does the copal varnish on Exhibits D and D D contain?

A. Practically none.

54 Cross-Q. 53. What minerals do you have in mind in making the discrimination which you seem to make between none and practically none?

A. Red lead, umber, or manganese, or sugar of lead, which settle to the bottom of the tanks.

(Examination suspended.)

(Examination resumed.)

Nov. 8, 1880.

Cross-Q. 54. Have you ever superintended the production of Tucker bronze practically—you have, I believe?

A. Yes.

Cross-Q. 55. When you practised the process by applying linseed oil and afterwards rubbing it off thoroughly, as prescribed in the patent, you were accustomed to dilute the linseed oil with turpentine or benzine, or naphtha before applying it, were you not?

A. Yes.

(Examination suspended.)

Counsel for defendants admits that Exhibits "A," "D," and "D D" were manufactured by defendants.

(Examination resumed.)

(And, in answer to redirect questions by said counsel for complainant, saith as follows:)

imitation bronze butt excepting those whose groundwork was produced by baking a black japan, you would be willing to swear that these butts were not Sargent's goods, would you?

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A. Yes.

(Examination suspended.)

Counsel for defendants admits that Exhibits "A," "D," and "D D" were manufactured by defendants.

(Examination resumed.)

(And, in answer to redirect questions by said counsel for complainant, saith as follows:)

Q. 1. What difference is there between the appearance of the groundwork of the butts which have been under discussion during the cross-examination, except those referred to as described in the affidavit of Henry B. Sargent, and the appearance of groundwork of butts that have been treated with oil in strict accordance with the specifications of the patent? If any, please explain it.

A. The groundwork of butts which have been under discussion, except the Sargent butt described in his affidavit, have been treated with thin oily solutions, without rubbing. The groundwork of such butts have all been of an absorbent character, and the effect of dipping groundwork of butts is to saturate such absorbent groundwork without leaving any excess of oil to be rubbed off. On the other hand, when such butts with the same character of groundwork are dipped into a thin solution of oil which has been diluted with benzine or spirits of turpentine, the effect is simply to fill the absorbent groundwork. The salient surfaces of the last-named butts being polished before the butt is treated with oil at all, and in consequence of being polished losing their absorbent character, has to be carefully rubbed with paper, cloth, rag, sponge or other suitable implements, but the character of the groundworks in the two kinds of butts under discussion will be substantially alike in all their characteristics—that is to say, as regards color, texture, and so forth.

Cross-Q. 2. In your answer to interrogatory tenth of the direct examination you say "the process he has described for coloring and covering the ground surfaces of his butts." By the words "ground surfaces" do you mean the polished salient faces or the sunken groundwork of the butts in question?

A. I mean polished salient faces.

Cross-Q. 3. In regard to the agreement between yourself and the Tucker Manufacturing Company, Charles M. Reed, and William H. Plummer referred to in your answer to cross-interrogatory fifth, whether you are ready, after consultation with counsel, to submit the same to the inspection of counsel for the respondent?

A. I am, and produce a copy for that purpose.

(Counsel for respondents places the said copy in evidence, marked "Exhibit Tucker Agreement, John C. Lane, Spec. Ex'r," counsel for complainant objecting thereto as incompetent, irrelevant, and immaterial.)

HIRAM TUCKER.

Subscribed and sworn to before me November eighth, A. D. 1880.

JOHN C. LANE,
Special Examiner.

Complainant's Evidence in Reply.

56 United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *v.* SARGENT & CO.

Testimony taken on behalf of the complainant in reply, under and pursuant to the sixty-seventh rule of the Supreme Court of the United States, in equity, as amended, before me, John B. Mills, special examiner.

Examination resumed at New Britain, April 15, 1881, ten o'clock a. m.

Present: E. G. Loomis, Esq., of counsel for complainant; C. E. Mitchell, Esq., of counsel for defendant.

(HIRAM TUCKER, a witness heretofore produced and sworn on behalf of the complainant, to interrogatories proposed by E. G. LOOMIS, Esq., of counsel for the complainant, answered as follows:)

Question 1. You are the complainant in this case, and have already been examined therein?

57 Answer 1. I am; I have.

Q. 2. In what does your experience in regard to the use of oil and varnishes generally consist, and what has been your experience in the process of manufacturing Tucker bronze?

A. I have been familiar with the use of varnishes and drying oils for the past forty years. I have been familiar with the Tucker bronze process ever since its first discovery by me, and have been a manufacturer of the same for many years, since the date of the patent.

Q. 3. What has been your observation in regard to the novelty of the process of making Tucker bronze, and of the product thereof?

(Objected to as incompetent and irrelevant.)

A. I have never heard the novelty of the invention denied except by those who were engaged in infringing the patent. I mean, after the invention and its novelty has been explained to parties who had sufficient interest to inquire in regard to the same.

Q. 4. Have you examined the testimony given by the several witnesses for the respondent in this case?

A. I have; very carefully.

Q. 5. Mr. John Ruff and Mr. Brocksieper and Mr. Purmont Bradford and Mr. Joseph B. Sargent and others have described a process by which they claim that Mr. Brocksieper and others have finished certain articles in imitation of bronze. Please compare the process thus described by them with that described in your patent, and state whether they are substantially the same, and give your reasons for your opinion. Please take processes in the order in which they were described, beginning with the the watch-stand described by Mr. John Ruff as finished by Brocksieper in his presence.

A. The process which Mr. John Ruff describes as being practised in his presence by Mr. Brocksieper does not, in my opinion, describe a process for making Tucker bronze, for the reason that one essential element described in the patent is left out of the operation. Mr. Ruff says that he obtained a casting of a watch-stand, and that after receiving said casting from the foundry he brushed it with a
58 wire broom-bush, which is the ordinary implement used in all iron foundries for the purpose of removing the loose sand from an ordinary iron casting, and in no case is now used for the purpese of removing scale. He says that after brushing the casting with this iron broom-brush Mr. Brocksieper brought in a cup some linseed oil without admixture of spirits of turpentine or any other dilutant, and with an ordinary brush applied a very thin coat, and afterwards held the article so treated over a forge fire until he obtained, as he expresses it, the desired color. No matter what other way this casting was treated, if the scale had not been removed as described in the patent, the result of such treatment would not have been Tucker bronze. I will say further in regard to this piece of work that if Mr. Brocksieper had removed the scale from this casting in question there would be no evidence that the product he obtained by such treatment was Tucker bronze. The coating of oil which he has described, as I should understand it from his description, is simply such a thin coating as those familiar with japanning ordinarily describe as thin coats, and would be very many times thicker than that described in the patent, and the fact that he might get a color from holding a piece of iron over a forge fire so treated would be no evidence whatever that a surface was obtained consisting of oxidized oil and oxidized iron, which constitutes the novelty of this bronze invention in question.

Mr. Ruff also testifies that after witnessing the experiment of Mr. Brocksieper he did a cast-iron sewing-bird substantially in the same way in which he had seen Mr. Brocksieper do the watch-stand, with the addition of chasing the work, which wasn't a process for removing scale at all. What I have said about the Brocksieper process on the watch-stand will apply fully to this sewing-bird. Neither of them are such descriptions as would enable a workman skilled in the art of japanning to produce Tucker bronze. Mr. Brocksieper's subsequent descriptions vary from the original process as described by Mr. Ruff and himself in the fact that he removed the scale as well as the sand from the coat and hat hooks, which I will take for samples and illustration; he also added copal varnish and spirits of turpentine to the oil for the purpose of
59 coating these coat and hat hooks, jamb hooks, etc. From his description of what he did with this composition, it appears to me to be an ordinary thin coat or coating, but many times thicker than that described in the printed process, and such a coating as in my opinion would prevent the iron from oxidizing the surface underneath, unless the coating (which would be very apt to occur) should crawl up into small bunches and leave part of the surface exposed to the action of the heat, in which case the surface would be of no commercial value whatever. But from the fact that Mr.

Brocksieper testified that these coat and hat hooks and other articles were left to partially dry so that they could be handled, as he expressed it, I should presume that the crawling effect might be obviated, which would leave upon the surface of the iron a colored surface which to inexperienced eyes would appear very like Tucker bronze, but would really be a surface, the same in character as a very thin coating of boiled oil japan would be over a surface of bright iron after being submitted to heat, and a color and surface which was universally known and practised by all japanners of skill and experience long before the date of and after my invention of what is called Tucker bronze. I understand Mr. J. B. Sargent's testimony to be substantially the same as that of Mr. Brocksieper and Mr. Ruff, and as intended to corroborate their testimony as to prior use of this said invention. Mr. Brocksieper has testified at considerable length in regard to the way he first became acquainted with the process for producing the so-called Tucker bronze. He says before he came to this country he had seen practised the same thing substantially in the process for tempering screws and shovels. The description of this process of tempering, which Mr. Brocksieper became familiar with, the knowledge of which, as he says, enabled him to make what is called Tucker bronze with such facility, is very accurately described by him.

It is a process that I have been familiar with, and that all workers of metal of any experience, I believe, are familiar with, and in fact is a very old art, it is presumed many hundreds of years. He says that after certain screws were put into a perforated box, a quantity of rapeseed oil was poured in, and the box held over a forge fire, or a proper fire, until the proper color and effect was produced. The effect of such treatment as this upon steel is simply to affect its temper, and incidentally to give the skin of the steel or iron a darker color than it otherwise would have. This rapeseed oil mentioned by him is not a drying oil, and in no sense the equivalent of linseed oil for the purpose of making Tucker bronze, and is simply the equivalent of lard or sperm oil, and used for lubricating purposes, or for the purposes of tempering, as described. A person situated as Mr. Brocksieper was when he first came to this country, or first went to work for the Peck & Walter Company, and having his attention called to a piece of iron-work, as it was, by Mr. Ruff, and not being acquainted with the art of japanning or its kindred arts, it would be the most natural thing in the world for him to take linseed oil, if more convenient to his hand, and go through the same operation that he had seen practised abroad. Now, to show that Mr. Brocksieper hasn't a correct idea, even at this late day, of what constitutes the new surface produced by the process described in this bronze patent in suit, I call attention to that part of his testimony where he says (without attempting to quote his exact language) he considers this Tucker bronze to be the result of the tempering process practised and well known by workers in metal, and the same as that which he describes as seeing abroad, which is the same thing as that universally used for tempering. Now, as a matter of fact, those processes described by Mr. Brocksieper do not produce a sur-

face at all like Tucker bronze in character, for the reason that this rapeseed or lard or sperm oil, used as he has described the rapeseed oil was used, and I use them all as being the same in character, do not change in character under the action of heat in such a way as to leave the hard resinous substance which results from the use of linseed oil, and which is one of the constituent elements of the combination to make the new surface in question, but simply leave a greasy surface that can be rubbed off by waste or paper, or washed off by soap and water, as a greasy plate should be washed. Mr. Brocksieper has testified to a process he used in producing a color on

Defendant's Exhibit Brocksieper Picture Frame.

61 If I remember rightly, he says he first coated this with a coating of size, made from varnish, oil, and spirits of turpentine, which is a very good composition for the purpose of sizing, if allowed to remain a sufficient length of time to become homogeneous—otherwise the composition would act badly—but heavier in body than the untreated linseed oil would be; that he did this picture-frame over with the solution, putting on, as he expresses it, equal parts, after rubbing the prominent points of the frame with sand-paper, and brushing the rest part of the frame (I will state here what I omitted to state before, that the ingredients from which the size was made were composed of equal parts of linseed oil, copal varnish, and spirits of turpentine.) Now, provided Mr. Brocksieper is not mistaken in the slightest degree as to the process he practised on this frame, there is no evidence that he produced Tucker bronze, for the reason that the only part of this frame from which the scale was removed presents the appearance of copper; and again, although this frame appears to be colored, that is no evidence that there was a sufficient amount of heat from the forge fire, or that a sufficient amount of heat from a forge fire got to the surface of the iron which was cleaned by sand-paper, to raise an oxide in conjunction with the oxidized oil. Now, to my mind, one of two things is true in regard to the process practised by Mr. Brocksieper on this frame in question; he either did not apply sufficient heat to the size he placed upon this frame by holding it over the forge fire to bring it to the ordinary color produced from practising the Tucker patented process (because it does not have the appearance of any Tucker bronze that I ever saw in my life), or he has rubbed on a thin coating of paint, composed of pigment and oil—most likely umber, if I am correct—then drying that over the forge fire or hardening it; afterwards touching it; afterwards touching it with bronze powder on the prominent points, as he has described.

The character of the copper appearance on the prominent points of this frame I must say is a mystery to me, in view of the testimony given by Mr. Brocksieper. If I was asked to give my judgment as an expert in matters of this kind as to how this coating or

62 color on this frame was produced, I should say, after the casting came from the sand it was brushed and sand-papered as Mr. Brocksieper has described it; that it was then submitted to a battery process, and a blush of copper deposited on the bright portions, and naturally to a very slight extent on the other portions of

the frame; that afterward this very thin pigment was rubbed on very thinly over the whole surface, and then the prominent, salient points rubbed with a rag to remove the pigment from the bright copper points. This process which I have described is old and well known, not only practised on iron, but for many years on spelter for chandelier work, and by following the description as I have given it, just such appearing work as this would be the result; and for those reasons, and from the long time which has elapsed since Mr. Brocksieper performed his operations on this frame, I think he has certainly forgotten just how he did it. Tucker bronze does not change in color from the lapse of time unless exposed to the action of flies and the weather. From my observation of work that was done as far back as the date of the patent, there isn't the slightest change apparent to the eye in the color and characteristics of its surface, and I propose, as the complainant in this case, to submit exhibits with proof of their being done twenty years ago.

I have not scrutinized Mr. Purmont Bradford's testimony with the care I have devoted to Brocksieper's, Ruff's, and Sargent's, for the reason that his operations could not be considered as anticipating the patent, if he had not made the slightest mistake in the description of what he did, as the result was a common japan surface. I should not consider it at all sure, however, if he had omitted the last coating which made practical japan, that he had done anything that would anticipate my bronze invention, as there is no satisfactory evidence in his description to show that he produced a surface of oxidized iron and oil combined.

Q. 6. Mr. Sawyer and Mr. Angevine have described the processes by which they claim to have finished certain check-canceller spears in imitation of bronze. Have you examined their testimony, and will you please compare the processes described by them with
63 that described in your patent? State whether they are substantially the same, and give your reasons for your opinion.

A. I have examined the testimony of the witnesses referred to with a great deal of care, and I do not find such a description given by them as would enable the person skilled in the art of japanning to make the patented bronze. My reason is, first, that the description in regard to applying the oil with a brush and paper does not describe within a degree of accuracy the thickness or thinness of the coat of oil. The witness used the word- "very thin;" but that is a comparative term, and what would be an extremely thin coating in ordinary phrase, as applied to japanning would mean a coating many times too thick to produce merchantable Tucker bronze. There is a portion of the testimony of Mr. Angevine, in regard to one process used on these spear-heads, which I am not able to reconcile in a way to appear reasonable to my mind. He says, without quoting his exact language, that after these spear-heads were polished and oiled he placed them on a thin iron plate, the spear-heads standing on their base, about two inches from the iron plate, which was about an inch and a half thick, more or less, and which was placed directly over the fire which heated the kiln. I am a little too fast in my description. He says that this thin sheet-iron plate

was placed over the thick iron plate which covered the fire, and when that thin sheet-iron plate became red hot, or a portion of it as big as a ten-cent piece became red hot, that then the spear-heads, oiled as he has described them, were placed on this thin sheet-iron so heated and allowed to remain about an hour, and were then finished. Now, this witness has certainly made a mistake in this description, for the reason that small pieces of iron like the spear-heads in question, placed in such a heat as they must have received under such circumstances, would in a very few moments have attained the heat of the red-hot plate on which they were placed, and the inevitable consequence of such heating would be to utterly destroy any oil coating which might have been placed thereon. There is not the slightest evidence that these spear-heads, which were oiled and colored over the forge, had on their surface when finished anything more than a thin coating of linseed oil, which had been colored by heat.

64 Q. 7. Have you had any communication with J. B. Sargent, of New Haven, who has testified in this suit, in regard to your invention described in the letters patent now in suit; and, if so, what?

A. I have had. I saw Mr. Sargent, at his factory in New Haven, the last of September or the first of October of the year 1876, soon after the decision of Judge Clifford in my suit against the Tucker Manufacturing Company for their infringement of my bronze. My business with him at that time was to effect a settlement with him for his past infringement of my bronzing patent. Mr. Sargent at that time said that he had not infringed my patent, for the reason that his work or bronzing was done by the old japanning process, which was a matter of common knowledge among everybody familiar with the patent; and when I explained to him the nature of my invention, and explained to him the grounds on which the decision of Judge Clifford was based, he denied that the process he used resulted in any oxidation of the iron, but was simply a thin coating of japan over a bright surface. The result of this interview was Mr. Sargent's denial of infringement and my affirmation that he did infringe.

Q. 8. Whether or not Mr. Sargent said that he had made goods that were like Tucker bronze previous to the date of your invention, or claimed to have anticipated in any way your process patent?

A. Mr. Sargent distinctly claimed at that interview that my process differed in no essential particular from the old and well-known japanning process, and the only way that I had attained notoriety and success was by doing the work nicer—I mean by "the work" the japanning—than was practiced by the trade before the date of my patent. He did not intimate in the slightest degree that himself or any one in his employ had ever done a similar finish on iron which differed from the old japan process.

Q. 9. Were the originals of the two letters already in evidence and agreed to be true copies of letters written by J. B. Sargent, and put in evidence in case of Tucker *v.* Burditt and Williams, except that the copy of letter No. 2 is undated, received by you from Mr. Sargent?

A. They were.

65 Cross-examined by Mr. MITCHELL:

Cross-Q. 10. Do you recognize Defendant's Exhibits Cancellers A^2 and A^3 and B^2 and B^3 as having the finish described and claimed in reissued letters patent No. 2356?

A. I don't know whether they are or not. If they have been oiled the oil has been rubbed off with such extreme thoroughness as to make it difficult for me to determine from simply looking at them.

Cross-Q. 11. In your opinion, are the exhibits referred to in the last question Tucker bronze or are they not?

A. I have given as intelligible an answer to your question as I am able. It is not one to which I can answer simply yes or no.

Cross-Q. 12. Can you not tell by inspection whether an article is Tucker bronze or not?

A. Not certainly; when exhibits are made for the purposes of deception, I cannot.

Cross-Q. 13. Can you say whether Defendant's Exhibits Canceller A^1 and Canceller B^1 are or are not Tucker bronze?

A. I should say with a good deal of confidence that the Exhibit A^1 was simply a brightened piece of iron colored by heat, and not Tucker bronze. Exhibit Canceller B^1 presents an appearance slightly different from Canceller A^1, and I am not able to say whether it is Tucker bronze or not. If there is any oil, linseed, or its equivalent oil, on this exhibit I am not able to distinguish it.

Cross-Q. 14. Well, is B^1 Tucker bronze?

A. I have answered as intelligibly as I can already, and I say about that as I said before, it is not a question which I can say yes or no to.

Cross-Q. 15. Is or is not A^2 Tucker bronze?

A. Same answer to this question as to the last.

Cross-Q. 16. Is or is not Canceller A^3 Tucker bronze?

A. Yes; I should call that a poor specimen of Tucker bronze. On close inspection, I think I see oil mixed with the oxide—not a good specimen by any means, and I am not sure that the character of the oil, on looking at it, would be linseed oil and come within the patent. I only guess at it.

66 Cross-Q. 17. Is or is not Canceller B^2 Tucker bronze?

A. I don't know whether it is or not; if it is, it is a worthless specimen.

Cross-Q. 18. Is or is not Canceller B^3 Tucker bronze?

A. May be a very poor specimen; cannot answer yes or no.

Cross-Q. 19. If made in the way testified to by Mr. W. R. Sawyer and Mr. Angevine, are they Tucker bronze?

A. I paid very little attention to that part of the testimony of these witnesses, because I didn't consider it of the slightest moment to my case what sort of exhibits of Tucker bronze they may make [illegible], or what sort of experiments they may conduct. My evidence [illegible] bears upon what these witnesses actually did, or [illegible], did, before the date of my bronzing patent here

Cross-Q. 20. You heard the testimony of Mr. Sawyer and Mr. Angevine, did you not, when it was given?

A. I heard a portion of it, and saw the other portion of it in writing.

Cross-Q. 21. I repeat, if Cancellers A^2 and B^2 and A^3 and B^3 were made as described by Mr. Sawyer and Angevine, they are Tucker bronze, are they not?

A. I can only say there *were* so much testimony given by those gentlemen that was irrelevant that I didn't think it worth while to examine any more of it than related to this case. What they swore they did before date of this invention or patent I examined with a great deal of care and interest, but I consider this superabundance of exhibits made for the purposes of this case were superflous and a waste of time, and for that reason didn't think it worth while to go into it.

Cross-Q. 22. Do you mean by your last answer that you do not know how Mr. Sawyer and Mr. Angevine testified that Cancellers A^2 and A^3 and B^2 and B^3 were made and finished?

A. I do mean to say just that; I don't mean to say that it was not stated in my presence, or that I might not have heard something about them; but, knowing that testimony of that character would have no important bearing upon this case, I did not charge my mind with it, and can't state at this moment more definitely than I have stated their testimony on that point.

67 Cross-Q. 23. You were present assisting your counsel during the taking of Mr. Sawyer's and Mr. Angevine's testimony, and were in constant consultation with your counsel during their cross-examination by your counsel, were you not?

A. I was not present at the direct examination of Mr. Sawyer or Mr. Angevine, but my counsel read over to me, before coming to the office of the examiner, portions of Mr. Angevine's direct examination, and after full consultation, Mr. Loomis and myself concluded that it was not worth while to cross-examine on Mr. Angevine's testimony, or at any length on either; but since that time my counsel and myself have discussed the important points that I have stated of the testimony of these two witnesses.

Cross-Q. 24. Did you not understand Mr. Sawyer to say, and Mr. Angevine to corroborate him in saying, that Cancellers A^2 and A^3 and B^2 and B^3 were made and finished in the same way as check-cancellers were made and finished at Smith's in Westfield before the war of the rebellion?

A. Of course I understood in a general way the significance of these exhibits put in by these witnesses in question, that they were put in for the purpose of showing priority of use of this process before the date of the patent in question; but, as I said before, I didn't consider that part of the testimony of the slightest importance, and did not charge my mind with precisely what was said about them.

Cross-Q. 25. Pardon me for saying that you were not asked what portion of the testimony referred to was important, nor whether you charged your mind with precisely what was said. I simply asked you whether you did not understand the witnesses to say that the exhibits referred to in the last question were made and finished

in the same way as check-cancellers were made and finished at Smith's in Westfield, before the war of the rebellion? Now, can you not answer that question?

A. I think I have said to you, in answer to a former interrogatory, that I could not, and I repeat that answer now.

Cross-Q. 26. What did you understand Exhibits A^2 and A^3 and B^2 and B^3 were intended to represent?

A. That those were done by the witnesses as specimens of
68 color they produced on goods before the date of my patent. I had no trouble about understanding the significance of those exhibits at any time; I only meant to say, in former answers, that I don't remember specifically what they said about them, or how they testified.

(Counsel for defendant states that he will resume the cross-examination upon the foregoing subject-matter when the testimony of Messrs. Sawyer and Angevine is present, it being now in the hands of the printer.)

Cross-Q. 27. In your opinion, is Defendant's Exhibit Ruff Art Exhibit Tucker bronze?

(Objected to.)

A. I should say it was a very good specimen.

Cross-Q. 28. Within letters patent No. 2356?

(Objected to.)

A. Undoubtedly.

Cross-Q. 29. And No. 2355?

(Objected to.)

Cross-Q. 30. Is Defendant's Exhibit Art Casting No. 1 within reissued letters patent No. 2356, and finished by the process described in No. 2355?

(Objected to.)

A. Undoubtedly this is Tucker bronze.

Cross-Q. 31. And is the same true of Defendant's Exhibit Art Casting No. 2?

A. Yes.

Cross-Q. 32. And is the same true of Defendant's Exhibit Art Casting No. 3?

A. I should say it was; the portions that appear to the eye are not covered with the bronze powder. I have no doubt the surface under the bronze powder is of the same character, but am not absolutely certain.

Cross-Q. 33. And is the same true of Defendant's Exhibit I?

A. Yes.

Cross-Q. 34. And is the same true of Defendant's Exhibit L?

A. Yes.

Cross-Q. 35. Is the same true of Defendant's Exhibit Match-box? (The same being two match-boxes separtely tagged.)

69 A. Yes.

Cross-Q. 36. Is the same true of Defendant's Exhibit G, H, and H^2?

A. Yes.

Cross-Q. 37. And the same is true of Defendant's Exhibit J, J^2, and L, these, however, having had a further finish by tipping their ridges with bronze powder?

A. Yes; all that you have called my attention to in this question have been through the Tucker process, in my opinion.

Cross-Q. 38. Is the same true of the six central knobs of Defendant's Exhibit A B?

A. Yes; although these seem to be a little coarser specimens.

Cross-Q. 39. Then, if I understand you, all the exhibits to which your attention has been called since and including cross-Q. 27 contain an exhibit both of the improvements (if they can be separated) described in your two patents in suit?

(Each of the questions objected to, from the cross-Q. 31 down to and including the above interrogatory, as incompetent, irrelevant, and immaterial.)

A. Yes.

Cross-Q. 40. The same is true of Defendant's Exhibit C D, is it not, so far as the six central knobs are concerned?

(Objected to as above.)

A. These seem to be poor specimens of black knobs, neither bronze in color nor good black. I have no doubt that the scale has been removed, and these knobs are so treated that they contain the elements which I claim as constituting Tucker bronze; but the result of such treatment is such that no valuable end has been attained over the old japan process, as far as the appearance of the goods go. That is about all I can say in relation to those exhibits in answer to that question.

Cross-Q. 41. And E F are also within your patents in suit, are they not—I mean the six middle knobs? I call your attention especially to that part of your patent which says that the process may be repeated until a black color is produced, the fact being that C D represents the repetition of the process applied to A B, and E F represents still another repetition of this same process.

70 (Same objection as before.)

A. Assuming that these knobs had the scale taken off, and were then treated to a thin coating of oil, as described in the patent, as they appear to be—some of them—and then heated until the oil and the color of the iron appeared simultaneously, and then still further treated with a thin coat of oil, and re-treated to the color of black, as appears on these darkest-colored knobs, I consider would be practising the patented process and producing the patented result.

Cross-Q. 42. You say, referring to the watch-stand finished by Brocksieper for Ruff (I refer to your reply to Q. 5), that Mr. Ruff says, "that, after brushing the casting with this iron broom-brush, Mr. Brocksieper brought, in a cup, some linseed oil without admixture of spirits of turpentine or any other dilutant." Where does Mr. Ruff say that the linseed oil was undiluted?

A. I don't mean to be understood as saying that Mr. Ruff said any such thing as that; but he said it was linseed oil, if I remember rightly; that of course inferred that there was nothing with it.

Cross-Q. 43. Do not your patents prescribe the use of linseed oil, and do they anywhere instruct the reader to dilute that linseed oil?

A. The patent describes linseed oil to be used pure and simple, either raw or boiled. They do not say anything about spirits of turpentine or any other dilutant being necessary.

Cross-Q. 44. Then you cannot regard the fact that Mr. Ruff fails to refer to any dilutant as in anyway material, can you?

A. I think so, in connection with his operation in regard to that exhibit. It is very material, as it is the only office of spirits of turpentine, when used with oil or varnish, to enable the user to obtain a thin coating with less trouble than he would without the spirits or any other dilutant; and if Mr. Ruff had testified that he had diluted his oil with three or four parts spirits of turpentine, more or less, to one of oil, he would have got on a very much thinner coat by the process he describes as using than he did.

Cross-Q. 45. You do not appear to understand me. Your
71 patents require the use of linseed oil, or its equivalent. Mr. Ruff says Brocksieper used linseed oil; does he not then say that Brocksieper used the material which your patent prescribes?

A. Certainly.

Cross-Q. 46. If, as would appear from Int. 38 and its answer, of Mr. Ruff's deposition, Art Castings No. 1 and No. 2 were bronzed by the same process as the watch-stand in question, you would have no doubt of its being what you now call Tucker bronze, would you?

A. Not the slightest.

Cross-Q. 47. You find nothing in Mr. Ruff's testimony to indicate that the castings were not smoothed in the sense of having the scale removed by tumbling or otherwise before the brush was used, do you?

A. First place, Mr. Ruff said nothing about tumbled casting; in the next place, an iron wire broom wouldn't have been a suitable tool at all to have treated a tumbled smooth casting with—it was not made for that purpose; and, in the third place, it would be next to impossible to tumble a delicate casting, such as he has described, without either breaking or destrying its beauty of configuration. I took it for granted he described the process as he practised it.

Cross-Q. 48. I so understood also; your reply to Int. 5 also contains this language: "Mr. Ruff also testifies that after witnessing this experiment of Mr. Brocksieper's (the watch-stand) he did a cast-iron sewing-bird substantialy in the same way in which he had seen Mr. Brocksieper do the watch-stand, with the addition of chasing the work, etc." Now, Mr. Ruff in describing how he made the sewing-

for the purpose of ornamentation; his varnish was applied after the iron had become cold. I don't claim that as a Tucker process at all, for the reason that the oil-varnish was not reheated.

Cross-Q. 63. Then there is some sense in applying oil or oil-varnish to scythes or shovels apart from producing the operation of tempering, is there not?

A. No, not the slightest if you are going to burn your oil
75 or varnish all off, and leave the iron as it was before, as Mr. Brocksieper has described it.

Cross-Q. 64. Where has Mr. Brockseiper described the burning-off of the oil?

A. In his description of the shovel process, where he describes the change of color which took place on the iron under heat after being oiled, to wit, the dark blue color of a portion of the shovel.

Cross-Q. 65. The oil would burn off in your process if the heat became too great on a particular portion of the article heated, would it not?

A. Yes, but in this case the process that Mr. Brocksieper has described differs essentially from my patent process, putting aside the kind of oil that he uses, in the fact that in this shovel process a substantial coat was placed on the shovel before submitting the same to heat, and that the only effect of heat on such a coating of oil, provided it had been by linseed oil, would have been to make it perfectly black, before the dark blue color which he describes the operator as watching for should make it appearance. Mr. Brocksieper has described pure and simple the proper and well-known process for treating shovels tipped with steel for the purposes of temper.

Cross-Q. 66. In reply to sixth interrogatory you said, "I have examined the testimony of the witnesses referred to (Sawyer and Angevine) with a great deal of care." Do you still adhere to that statement?

A. I do.

Cross-Q. 67. Then will you tell me whether exhibits Canceller A^2, B^2, A^3, B^3 are Tucker bronze, if they were finished in the way testified to by those witnesses?

A. I haven't thought it advisable to give that part of their testimony any considering whatever. When I testified that I had examined their testimony very carefully I meant that part of it which I considered essential to this case, to wit, what the witnesses actually did before the date of my invention. Whether these spear-heads which they have put in for the purpose of illustration are Tucker
bronze or not hasn't to me the slightest interest, as I view the
76 matter. In looking over that testimony, or in having it read over by my counsel to me, I found the great mass of it, as I believe, entirely irrelevant to the case.

(Counsel for defendant states—

1st. That he did not ask the witness what part of the testimony he regards as irrelevant to this case.

2d. He did not ask the witness what part of the testimony has to him the slightest interest, as he views the matter.

3d. Whether the witness thought it advisable to give that part of the testimony any consideration whatever, and in view of the manifest interest of the witness he declines to cross-examine him further as an expert.)

(Counsel for complainant states that if any answer of any witness is regarded by counsel for defendant as irresponsive, or as otherwise objectionable, the usual remedy of objection is open to him.)

HIRAM TUCKER.

Sworn to this sixteenth day of April, 1881, before me—

JOHN B. MILLS,
Special Examiner.

Hearing adjourned until Monday, April 18, 1881, at Boston, at eleven o'clock a. m.

BOSTON, *April* 18, 1881.

Examination resumed. Counsel present as before.

Examination adjourned to Tuesday, April 19, at 9.15 a. m.

BOSTON, *April* 19, 1881.

Examination resumed. Counsel present as before.

HIRAM TUCKER recalled:

Question 1. If you have procured any specimens of Tucker bronze, showing the effect of time and of wear, please produce the same.

Answer. I have; I hereby produce one lamp complete and
77 part of another; these lamps have been in use from fourteen to fifteen years; the difference in color of these two lamps is owing partly to the difference in character of oil used for the purpose of producing the bronze, the amount of heat they were submitted to, and the difference of the smoothness of surfaces. The grayish appearance of the ground-work on the incomplete lamp, which represents the acorn pattern, as we call it, is owing to a very thin pigment, composed of flake white, verdigris green, and linseed oil, which, after being applied very thinly with a brush, was rubbed off with a rag or tissue-paper, and is intended to represent the oxide that appears on the ground-work of real bronze which are in the rear of salient surfaces.

Q. 2. By whom were these exhibits, Tucker Lamp No. 1 and Tucker Lamp No. 2, made; and when and where have they been since they were made; and to what wear have they been subjected?

(Complainant puts in evidence Complainant's Exhibit Tucker Lamp No. 1, J. B. M., special examiner, and Complainant's Exhibit Tucker Lamp No. 2, J. B. M., special examiner.)

A. These lamps were made by the Tucker Manufacturing Company while I was superintendent, done under my supervision; and

lamp No. 1 was given by me as a present to my brother, Edward O. Tucker, and to my knowledge has been used by him as a kerosene-oil lamp certainly as many as fourteen years; lamp No. 2 was given as a present to Mrs. Mary H. Green, my sister-in-law, and has been in use as a kerosene-lamp for about the same time as lamp No. 1 has been used by my brother.

Q. 3. Please state what has been your experience with reference to the art of japanning.

A. I was taught the art of japanning about forty years (40 years) ago, in Meriden, Conn.; about thirty-odd years ago I was engaged in a manufacture which required the best skill of japanners. It was in the manufacturer of mirror marble chimney-pieces, which were composed of a frame-work of highly ornamental cast-iron and panels of plate glass. As this cast-iron work was made to represent
78 black marble as near as possible, the japanning had to be done with great care and skill. I found the japan so obscured the fine lines of the castings as to be very objectionable, and it was at that time that I first began to experiment with a view to making a better finish for ornamental cast-iron work. I will say here that cast-iron was the finest-flowing metal, when put into moulds [in] the form of castings, known to the arts; but, for the want of a suitable finish, it had never been used for work such as chandeliers, lamps, and fine builders' hardware *was* required. At the time referred to, to wit, when I was engaged in manufacturing these chimney-pieces, I made a long series of experiments with thin coatings of japan in our regular japan oven for the purpose of discovering an improved finish, but without valuable result until I had constructed a small oven where I could obtain a much higher degree of heat, and where I began to apply extremely thin coatings of a solution of ivory black and boiled linseed oil of commerce. I succeeded in producing a fine black coating by putting on this black solution in a thin coating and then rubbing off the same with a common shoe-brush thoroughly. In pursuing these experiments I noticed on the prominent points of an ornamental casting, which had been made bright before I began to treat it, which points had been rubbed off more thoroughly than the other parts of the casting, slight indications of a bronze color. This discovery led me to think it might be possible, by leaving out the black from the boiled oil, to produce a new finish. I took a highly ornamental picture-frame and, after brightening the salient points with emery-paper to remove the scale, treated it with an extremely thin coating of boiled oil, and then removed as much of that coating as I conveniently could with a shoe-brush. The result was not satisfactory, but showed to my mind the possibility of obtaining a new finish in this way. Owing to press of business at this time, and to the fact that I was called to go to England to superintend the manufacture of these mirror marble chimney-pieces, I did not pursue my experiments further at that time. While in England I had an excellent opportunity to examine the state of the art of coloring iron, but found nothing that would indicate that English manufacturers of
79 fine ironwares were working in the direction of the new

bronze finish I had in my mind. The time I have been speaking of in relation to these manufactures and experiments was as far back as 1849. I went to the World's Fair, in Paris, in 1855, where I had a more excellent opportunity to examine the state of the art of finishing iron as carried on in different parts of Europe—and, in fact, the world, as a world's fair was being held in Paris at that time. I saw nothing at that time that indicated that manufacturers of fine ironware who exhibited at that fair knew anything about what is now called Tucker bronze. About 1860 or 1861 I again began a series of experiments for the purpose, if possible, of completing my discovery of this bronze in question, and, after spending considerable time and money, I met with abundant success, and applied to the Patent Office of the United States for a patent for the process of making the new bronze which I had discovered. A patent was granted me Dec. 15, 1863, which patent is now in litigation between myself and Sargent & Co. I immediately after the discovery of this invention began to manufacture the patented goods. These goods were received with great favor by all classes of manufacturers and traders who were interested in lamp, chandelier work, and builders' hardware particularly. The goods very rapidly superseded brass, spelter, and plated goods for certain uses, and came largely into use for builders' hardware, gas and kerosene chandeliers, brackets, lamps, etc., and in fact created a new industry which never existed before. In 1867 the Tucker Manufacturing Company, which was formed in 1865, had in their employ between two and three hundred men making these patented goods, so rapidly did they come into use. In 1867 the Tucker Manufacturing Company sent a large line of these goods, consisting of chandeliers for gas and kerosene, lamps, clock cases, etc., to the Paris Exposition. This work created a great deal of interest both among scientific men and manufacturers of metal goods generally. Favorable notices were published in the different scientific journals of Europe; noticeably, "London Engineering," edited by the late Zerah Colburn; also in the "London Art Journal." These goods received a first-class medal as a reward of merit, the highest prize given at that exhibition.

80 (Objected to as incompetent and as irresponsive, so far as the answer goes, outside of the matter inquired of in the question.)

Q. 4. Describe the various modes of japanning and the materials and tools used therein.

A. Japan is made from linseed oil boiled to a paste, and, after cooling, partially reduced by adding the same quantity of spirits of turpentine as there is of boiled paste. This composition represents what is called English lock varnish; adding to this composition Paris or Prussian blue makes what is called brown japan. Still another addition of asphaltum, dissolved in spirits of turpentine to about the consistency of cream, makes what is called black japan.

These different solutions are usually used on iron or other metal work, papier-maché, or other work without further dilution when the composition is comparatively new, but after standing a length

of time (six or eight months) it becomes quite thick, and has to be reduced with spirits of turpentine before using. This japan is put on in varying degrees of thickness, from very thick to very thin, according to the smoothness of the ground-work on which it is placed. The English, or the first composition, such as I have described as English lock varnish, is intended to be used over bright surfaces, and produces the effect of light straw color when first applied, which color is deepened by applying heat to the same. These coatings are usually applied very thin. The next composition, which is the same thing with the addition of the Prussian or Paris blue, makes a japan of a darker hue, called brown japan. This japan is used sometimes on a bright tin surface, like the well-known petticoat lamp or tin lantern, dust-pans, etc., and is something the tone of color of lamp marked "Tucker Lamp No. 2." This japan also *is* used of various degrees of thickness and thinness, according to surface and color desired, also upon bright iron surfaces, long before the date of my patent in question; and, after being somewhat darkened by heat, in process of baking, resembles in color quite closely the lamp last referred to. Size for japanning purposes, made of common linseed oil—that which is old very much preferred—and copal varnish and spirits of
81 turpentine, commonly used for holding gold-leaf or powdered bronze, and used of various degrees of thickness, according to the roughness or smoothness of the work to which it is applied. All these compositions, and the manner of using the same, which I have described are now, and were for many years prior to the date of my invention, used in the art of japanning. All these coatings and solutions were commonly applied with either hog's-hair, bear's-hair, or camel's-hair brushes. Sometimes small articles were dipped in solutions made from these compositions. When heat was applied for the purpose of hardening, what I have described as these different solutions all together constitute a great part of the art of japanning. In regard to the size—this size is sometimes used without heat by carriage painters, sign painters, etc., but when heat is used it becomes a japanning process.

Q. 5. Can you make Tucker bronze with either of the preparations above described; and, if so, how?

A. Yes; English lock varnish diluted with four or five parts of spirits of turpentine or benzine into which bright iron articles are dipped, then submitted to the heat described in the patent in question, produces very fair Tucker bronze. The size which I have described, if allowed to stand after the different parts are mixed together of which it is composed, as I have described it, remain a sufficient length of time to become homogeneous, as it were, then applied in thin coat with a brush, or other suitable implement, and afterwards rubbed off thoroughly with a rag, sponge, or other suitable implement, would make very good Tucker bronze if submitted to the proper heat.

Q. 6. How long have you been acquainted with the process of japanning with the size referred to in the latter part of your fourth answer?

A. For more than thirty years.

Q. 7. Please describe the implements used in japanning.

A. A japanning cup is usually made of tin, very often having a small wire soldered into the top, and running across, for the purpose of rubbing the surplus japan, size, oil, or other solution intended to be used, from the brush.

Many of these cups, however, are made without the wire,
82 and the brush rubbed over the edge of the cup, which is an equivalent. The brushes are of various kinds, such as hog's hair, camel's hair bear's hair, badger's hair; these dippers, brushes, and dusters which are made of hog's hair usually are the implements used for applying coatings of the materials I have described for japanning purposes. A japanning kiln is usually high enough for a grown person to walk in, and six or eight feet long, from four to six feet broad, furnished with racks at each side on which the bars rest which hold the work to be baked. This room that I have described is sometimes made of brick with iron doors, and sometimes made of sheet-iron with double walls. The heating apparatus is sometimes supplied by a stove which sits at one end or one corner of the room described, with a mouth-piece passing through the wall for the purpose of feeding or passing in the fuel. There usually runs from this stove a pipe once or more times around the oven. Another way of placing the heating apparatus is to have a tramway running entirely under the oven, on which is placed an iron carriage which holds the fire-pot, in which the fire is built and then run under the oven. In the latter description, however, the wall of this room which is called a kiln is usually double, and the space between the walls acts as a flue for the purpose of carrying the smoke from the fire-pot. This chamber underneath the kiln which contains the tramway-carriage and fire-pot is all enclosed, making it a tight chamber, with the exception of an inlet for draught. Directly over this fire-pot, and forming part of the floor of the centre of the oven, is usually placed a thick cast-iron plate.

Q. 8. What are the relative advantages of the different processes now in use for obtaining the patented surface called Tucker bronze?

(Objected to as not matter in rebuttal, and as implying that there is more than one process of producing the surface called Tucker bronze.)

A. There are two ways of arriving at the result of what is called Tucker bronze. The first is that described in the patent. The second
83 is to polish the surface of the metal, and then submit it to a sufficient heat to raise the color on the surface of the iron, then placing a coating of oil or oil varnish over the same and submitting it to heat. The advantage of the second process is, that it is much less work than the way described in the patent for producing the same result, and for practical purposes just as good. Where, however, very fine effects are desired, it is better to follow the description exactly as given in the patent.

Q. 9. What is the effect of the fumes arising from japan goods, while in the process of japanning, upon the uncoated bright surfaces of metal goods?

A. It is to give them a straw color and an iridescent appearance, like what is sometimes seen upon bronze metal. I have experimented somewhat with bright brass goods, and have produced very handsome colors in this way, but of no value, as there is so little adhesion between this deposit and the metal that it cannot be covered by varnishes or oily solutions for protection.

(Noon recess.)

Q. 10. Please give us as good an idea as you can as to the relative fluidity of the various japanning fluids and the dips used in practising the Tucker process.

A. In practising the Tucker process the fluids used are very thin, like water almost, whereas in the japanning process they are used very much thicker. I would say, however, in regard to the Tucker bronze, or the process of making the Tucker bronze by dipping, that where benzine is used as a dilutant, owing to its rapid evaporation, the dip sometimes gets thicker than it ought to be; the result then will be simply a japan coating, as the material is so thick as not to admit of the bright iron underneath being oxidized.

Q. 11. Referring to the latter part of your last answer, how is it if the color be raised on the light metal before dipping?

A. In that case the result is Tucker bronze, invaribly, provided the coating which is laid over the oxidized surface is baked by the japanning process, and the color of the oil or varnish dip be modified by said baking.

(Cross-interrogatory by C. E. Mitchell, Esq., of counsel for respondent.)

84 Cross-Q. 12. How many times was the operation of oiling and heating repeated upon Complainant's Exhibit Tucker Lamp No. 1?

A. My impression is three.

Cross-Q. 13. Was the oil applied as directed by your patent?

A. I have no doubt it was. I did not do it myself.

Cross-Q. 14. How was the fine polish upon the salient faces obtained?

A. By use of emery-wheels of different degrees of fineness. I think the last fine finish was obtained by a wheel which was first coverered with flour of emery, and afterwards the wheel so covered was stoned down with a smooth stone and oil. I judge this to be the case from the fact of the lamp's presenting so fine an appearance. That was the way this class of work was finished.

Cross-Q. 15. This fine polish and general elegance of finish and the repetitions of the oiling and heating had somewhat to do, I suppose, with the preserved condition of the lamp; had it not?

A. Undoubtedly.

Cross-Q. 16. Although so finely finished, I suppose that exposure to the elements, or in any place of some dampness, would have prevented its having the preserved look which it now has?

A. Yes; if exposed to the sun and rain, or to the action of flies or

fly-dirt, so called, or kept in a damp cellar, the beauty of the finish would be entirely destroyed in the time this lamp has been finished. No finish which has ever been discovered will preserve the face of cast-iron intact under such circumstances.

Cross-Q. 17. When did you last see the top of this lamp No. 1?

A. Yesterday; I removed it from this part on exhibition.

Cross-Q. 18. Why did you remove the top from lamp No. 1 and not from lamp No. 2?

A. Because the top of lamp No. 1 had become very much defaced from constant wiping in the fifteen years the lamp has been in use was one reason why I did not bring it. Another reason was that I was in a hurry and did not wish to stop for the lamp to be emptied and cleansed.

85 Cross-Q. 19. Will you produce that top of Complainant's Exhibit Tucker Lamp No. 1 which you removed on account of its defacement?

A. Yes, with pleasure.

(Counsel gives notice that he desires to have it produced.)

Cross-Q. 20. Did it not occur to you that it was hardly the fair thing to remove this lamp-top when the avowed object of producing these lamp exhibits was to show how well Tucker bronze withstands the effects of use?

A. No, it did not; I never claim for this finish that it will withstand for a long time abrasion by cleaning; I have given you the exact truth; no more, no less.

Cross-Q. 21. How many repetitions of the process was lamp No. 2 subjected to?

A. Three, I believe.

Cross-Q. 22. It is a little coarser in finish than lamp No. 1, is it not?

A. Yes, a great deal coarser.

Cross-Q. 23. Was it subjected to a higher heat?

A. I think it was, from its appearance.

Cross-Q. 24. I notice upon the base a place where the knife has evidently been employed to remove a portion of the finish, evidently very much changed from what it was originally. Had you noticed it before?

A. I had not.

Cross-Q. 25. You see, do you not, that the spot to which I have directed attention has become very much changed from what it originally was, and that the changed surface has been apparently scraped off?

A. I do.

Cross-Q. 26. Do you notice a brownish look, having a general resemblance to umber, surrounding the scraped portion?

A. No, not umber; but vankyke brown is what I should compare it to.

Cross-Q. 27. I suppose no preparation whatever was applied to these lamps before the salient surfaces were ground?

A. I have no knowledge that there was. I don't think from the appearance that there was.

86 Cross-Q. 28. What degree of heat did you employ in the small oven which you built, and by which you succeeded in producing a fine black coating upon iron, as stated by you in interrogatory 3?

A. From four to five hundred, I should say; possibly more than that.

Cross-Q. 29. And you applied linseed oil containing ivory-black to the iron, and rubbed it off thoroughly with a common shoe-brush before baking, did you?

A. I did.

Cross-Q. 30. To what extent did you practise this art?

A. We sold quite a large quantity of goods finished in that way.

Cross-Q. 31. Was the scale removed from the iron?

A. It was in some cases.

Cross-Q. 32. When was this?

A. As far back as 1849—possibly the latter part of 1848.

Cross-Q. 33. So far as I can see, this process differed from your patented process only in the fact that ivory-black was intermixed with the linseed oil. Am I right?

A. Not exactly. Oil put on with a brush to bright iron very thinly indeed, from a japanner's point of view, and then rubbed off with an ordinary stiff shoe-brush, would not be taken for a surface resembling bronze metal, owing to its streakiness and unevenness. It wouldn't be as good or as valuable as a surface for iron as the old and well-known thin coating of japan baked over a bright surface of iron, and such as I have referred to in my testimony, although a coating of oil applied with a brush, then rubbed off with a common shoe-brush, as I have described, would contain oxidized oil and oxidized metal, which are the elements of my patent.

Cross-Q. 34. In this old process, practised in 1849 by you, the iron was polished smooth enough, and the oil and mixture was applied thin enough, and the heat was applied high enough, to make Tucker bronze, and the result would have been Tucker bronze but for the ivory-black in the linseed oil. Is not that correct?

A. No, it is not. I will explain. As I said before, the oil,

87 when applied, or finished off, on those goods with the shoe-brush, no bronze surface, or no surface which looked like bronze metal, would result from the crude way in which these goods were handled.

Cross-Q. 35. In the old process, practised in 1849, the iron was polished smooth enough for use in the Tucker process, was it not?

A. It was.

Cross-Q. 36. The black solution was put on thin enough for use in the Tucker process, was it not?

A. It was.

Cross-Q. 37. And the heat was applied high enough for the Tucker process, was it not?

A. It was.

Cross-Q. 38. The result would have been what you now call Tucker

bronze of a greater or lesser degree of excellence but for the presence of the ivory-black, would it not?

A. It would not have come within those terms. There was nothing excellent nor agreeable to the eye about the surface, although I admit that there was oxidized iron in that surface. I mean that if the ivory-black had been left out of this process that the result would have been a streaky surface of burnt oil mixed with oxidized iron, not suggesting a bronze finish.

Cross-Q. 39. I do not understand your last answer. Please hear cross-q. 35, 36, 37, and 38 read once more, and see if you can truthfully say that the steps referred to in the first three questions would not have involved the process described in your letters patent No. 2355 but for the presence of the ivory-black.

A. I can only repeat that such treatment would have resulted in a spoiled surface; but I will admit that the same quantity of oil used with the heat as described would have produced good Tucker bronze if laid upon the iron in a proper manner.

Cross-Q. 40. You say, in reply to Q. 4, referring to this bronze in question, "I, immediately after the discovery of this invention, began to manufacture the patented goods." When was that?

88 A. Well, I began to manufacture them before patented. I think in 1862, perhaps a little earlier.

Cross-Q. 41. You say, "I, immediately after the discovery of this invention, began to manufacture the patented goods." How long a time do you include in the expression "immediately after?"

A. Well, I should say I began to manufacture the same afternoon or the next morning.

Cross-Q. 42. You say in reply to Q. 4, that you again began this series of experiments about 1860 or 1861. Did you not make the discovery of the invention before 1862?

A. Thereabouts; not long before.

Cross-Q. 43. Did you not make the invention and begin to practise the process in the manufacture of goods in 1861?

A. It is possible. I haven't refreshed my memory by referring to any data, which I ought to do to testify particularly, as my memory of dates is quite poor. But it's some time in the neighborhood of 1862; it might have been 1861. I wouldn't swear positively as to that without looking.

Cross-Q. 44. What were the very first articles that you manufactured by the process in question, and where were they done, whether it was in 1861 or 1862?

A. The very first article, I believe, was a bedstead, an iron bedstead. I was to work over a corner-piece of the bedstead when I first struck the invention, and immediately, I think the same afternoon, polished the rest of it, and did it — Tucker bronze. I will not swear positively that this bedstead was the very first thing completed, but think it was. These articles were first made at Charleston State Prison, Massachusetts. I have said "these articles," the bedstead the first, the next articles some picture-frames, and soon after I began to make kerosene goods—very soon after.

Cross-Q. 45. In what business were you at that time engaged?

A. Manufacturing iron bedsteads with a patent spring-bottom for the use of the surgeon general's department, U. S. A. I was a contractor at that time for the labor of the prisoners at that institution.

89 Cross-Q. 46. When did your bedstead contract run out?

A. I am unable to state without looking at data. My impression, however, is that it was about 1864.

Cross-Q. 47. What became of this bedstead to which you first applied the Tucker process?

A. My impression is that I carried that bedstead home for my own use; but I will not be positive.

Cross-Q. 48. Who saw it at the prison?

A. A man who was in my employ by the name of Stead. I don't remember his Christian name. I presume many others. I did not keep it secret at all.

Cross-Q. 49. How soon was the process applied to lamp or chandelier work?

A. I think we began to make patterns for that class of work as early as 1863, perhaps earlier. We were well prepared with a line of goods, I think, as early as 1865. There was as much as two years consumed in getting things ready.

Cross-Q. 50. Was the process applied to builders' hardware before 1868 to any considerable extent, if at all?

A. It was applied to builders' hardware, but not to any great extent, except to brackets.

Cross-Q. 51. In reply to interrogatory 5, you say for substance that the size (composed of linseed oil, copal varnish, and turpentine) properly applied would make very good Tucker bronze if submitted to proper heat. Have you ever testified otherwise?

A. I don't think I ever did when the composition of which the size was made has been allowed to lay a sufficient time before being used.

Cross-Q. 52. Is the second process described by you in answer to interrogatory 8 less expensive than the one described in the patent?

A. It is.

Cross-Q. 53. Considerably so?

A. Yes.

Cross-Q. 54. You say in reply to interrogatory 10 that in practising the Tucker process the fluids used are very thin, like water, almost. Does your patent say anything about thinning the linseed oil?

90 A. It does not. The thinning is only another way of getting on an extremely thin coat.

Cross-Q. 55. Would not a person reading your patent understand that the linseed oil was to be applied in its normal condition, and that the requisitely thin coat was to be obtained by rubbing thoroughly with a rag, sponge, or other suitable implement?

A. They would.

Cross-Q. 56. In what arts and manufactures was oxidation of the surface of the metal produced by heat employed in finishing the surface before the date of your invention?

A. Tools made of steel, gun and pistol barrels, small trimmings to fire-arms, both of steel and wrought iron. I never knew articles of cast iron to be ornamented in this way.

Cross-Q. 57. Clock pointers, steel pens, fish-hooks, and other articles were so surfaced, in addition to those already mentioned by you, were they not?

A. Yes; and watch-springs also.

Cross-Q. 58. You do not regard your process as limited to cast iron as opposed to wrought iron, or even steel, do you?

(Objected to as incompetent.)

A. I shouldn't like to answer that question, as it seems to me a question of construction. I don't wish to commit myself.

Cross-Q. 59. What significance do you associate with the distinction between cast iron and wrought iron, which you make in your reply to cross-q. 36? Do you regard it as in any way material to this inquiry?

A. It may be for the reason that quite a permanent color may be produced upon wrought iron and steel without the addition of oil and heat on the same, whereas on cast iron (being a much coarser metal) these colors raised by heat are very fugitive and of no value whatever.

Cross-Q. 60. On what article of wrought iron is the oxidized surface left wholly unprotected by any protecting substance whatever, where a permanent finish is desired?

A. On the article of screws, principally, if I recollect rightly. I don't recall any other article at this moment, except gun-barrels and trimmings used about gun-barrels.

91 Cross-Q. 61. Was no substance whatever used in connection with oxidation as a finish for gun-barrels at and prior to the date of your patent?

A. Sometimes there was, and sometimes there was not.

Cross-Q. 62. Who made gun-barrels without in any way protecting the oxidized surface?

A. I am not able to state.

(The witness produces the lamp-top called for and marked Tucker Lamp-Top.)

Cross-Q. 63. I see that the oxidation is nearly all removed from the top of this lamp-top—as I presume, by scouring it to make it clean. Are my surmises right, so far as you know?

A. They are.

HIRAM TUCKER.

Before me—

J. B. MILLS, *Special Examiner.*

92 TUCKER EXHIBIT A A. John C. Lane, Spec. Ex'r.

TUCKER *v.* SARGENT.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted the Tucker Manufacturing Company September 11th, 1866, No. 2355, for "improved process of bronzing or coloring iron."

In testimony whereof I, W. H. Doolittle, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this nineteenth day of January, in the year of our Lord one thousand eight hundred and eighty, and of the Independence of the United States the one hundred and fourth.

[SEAL.] W. H. DOOLITTLE,
Acting Commissioner.

Reissue No. 2355.

UNITED STATES OF AMERICA:

To all to whom these letters patent shall come:

Whereas Hiram Tucker of Newton, Massachusetts, assignor to the Tucker Manufacturing Company of Boston, Massachusetts, *have* alleged that said Hiram Tucker invented a new and useful improved process of bronzing or coloring iron (for which letters patent were issued to him dated December 15, 1863, which
93 letters having been surrendered by said assignees, the same have been cancelled, and new letters ordered to issue to them on two separate amended specifications), which he stated had not been known or used before his application; had made oath that he was a citizen of the United States; that he did verily believe that he was the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; said assignees having paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said invention, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said The Tucker Manufacturing Company, their successors or assigns, for the term of seventeen years from the fifteenth day of December, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said invention, a description whereof is given in the words of the said The Tucker Manufacturing Company in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made

patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this eleventh day of September, in the year of our Lord one thousand eight hundred and sixty-six, and of the Independence of the United States of America the ninety-first.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

T. C. THEAKER,
Commissioner of Patents.

The Schedule Referred to in these Letters Patent and Making Part of the Same.

To all whom it may concern:

Be it known that I, Hiram Tucker, of Newton, in the county of Middlesex, in the State of Massachusetts, have invented a new and improved process or method for superficially bronzing or coloring iron; and I do hereby declare that the following is a description of my invention, sufficient to enable those skilled in the art to practise it:

Metals have heretofore been lacquered or bronzed by the application of a solution of resin and metallic powders or salts, and dried by exposure to air or heat. Iron has been japanned by covering its surface with oily solutions of asphaltum and pigments and subsequent application of heat sufficient to produce hardness. These are well-known operations.

My invention consists in a process of covering iron with a very thin coating of oil, and then subjecting it to heat, the effect of which is to leave upon the iron a firm film, which is very durable, and gives the iron a highly ornamental appearance, like that of bronze.

In practice I proceed as follows:

The surface of the iron is cleansed from sand, scale, or other foreign matter, and where fine effects are desired the surface is best made smooth or polished. Under given conditions of heating and oiling, the finer the polish the lighter is the bronze tint produced. In cases where ornamentation is obtained by relief the salient parts should be the most highly polished or most smoothly surfaced, in order that the color produced upon them shall not be so deep as it is on those parts which are in the rear, so as to imitate thereby more nearly the effects of genuine bronze, in which its natural oxidation is apt to be worn somewhat away from its salient parts, and therefore lighter in color.

When the iron is thus prepared I cover it with a very thin coating of linseed oil, or any oil which is the equivalent therefor, for the purpose here specified (such a coating as I find best
95 attained by applying the oil with a brush, and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement), and then place it in an oven, where it is sub-

mitted to a degree of heat which may be measured by an intensity sufficient to change a brightened surface of clean, unoiled iron to a color varying from a light straw color to a deep blue, the lowest degree of heat producing the lightest colored changes and the lightest bronze, and the highest degree of heat producing the darkest colored changes and the darkest bronze. It is important that the coating of oil be made extremely thin, as a coating of any material thickness will leave a rough or varied surface after the heat is applied. As the oiled iron becomes heated the color obtained will be bronze, of an intensity corresponding to the degree of heat employed; but it should be observed that the heat may be made so intense and so long continued as to destroy the oil, in which case the iron will lose the bronze tint acquired and will assume the dark blue shade.

The perfection of the results obtained under these instructions will of course depend, in a considerable degree, upon the dexterity and watchfulnes of the operator in applying the oil and in regulating the heat.

In practice I prefer to use boiled linseed oil. When the desired shade of bronzing is obtained the iron is removed from the oven or furnace, and, if desired, may again be treated with oil as before, even if not cool, and then again submitted to the action of heat, as described, and the operation of oiling and heating may be repeated indefinitely, each repetition deepening the shade of the bronzing. I recommend that at each repetition the degree of heat should be less than the degree immediately before employed; and in oiling and heating more than once I recommend for the second and succeeding oilings the use of a dry hog-hair brush to take off the surplus oil. The process may be carried to such an extent by repetition of oiling and heating as to produce a very dark color; black even may be thus produced.

I have specially described linseed oil as preferred by me for the practice of my invention because of its good drying quality and its capacity of giving a good, uniform, smooth film when spread thinly upon the iron, as before described.

96 Slight variations from the degrees of heat above mentioned may be allowed without departing from the principle of my invention.

What I claim and desire to secure by letters patent is the process of ornamenting iron in imitation of bronze by the application of oil and heat, substantially as described.

HIRAM TUCKER.

Witnesses:
J. B. CROSBY.
FRANCIS GOULD.

Confirmed by Tho. I. Fisher, president of Tucker Manufacturing Company.

Ex'd. H. M. H. G. R.

97 TUCKER EXHIBIT B. John C. Lane, Spec. Ex'r.

TUCKER *v.* SARGENT.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the reissue letters patent granted the Tucker Manufacturing Company September 11th, 1866, No. 2356, for "Improved manufacture from iron in imitation of bronze."

In testimony whereof I, W. H. Doolittle, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this nineteenth day of January, in the year of our Lord one thousand eight hundred and eighty, and of the Independence of the United States the one hundred and fourth.

[SEAL.] W. H. DOOLITTLE,
Acting Commissioner.

Reissue No. 2356.

United States of America to all to whom these letters patent shall come:

Whereas Hiram Tucker, of Newton, Massachusetts, assignor to the Tucker Manufacturing Company, of Boston, Massachusetts, *have* alleged that said Hiram Tucker invented a new and useful improved manufacture from iron in imitation of bronze (for which letters patent were issued to him dated Dec. 15, 1863, which letters having been surrendered by said assignees, the same have been cancelled,
98 and new letters ordered to issue to them on two separate amended specifications), which he stated had not been known or used before his application; had made oath that he was a citizen of the United States; that he did verily believe that he was the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used, said assignees having paid into the Treasury of the United States the sum of thirty dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in said invention, and praying that a patent may be granted for that purpose:

These are, therefore, to grant, according to law, to the said The Tucker Manufacturing Company, their successors or assigns, for the term of seventeen years from the fifteenth day of December, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used the said invention, a description whereof is given in the words of the said The Tucker Manufacturing Company in the schedule hereunto annexed, and is made part of these presents.

In testimony whereof I have caused these letters to be made patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand, at the city of Washington, this eleventh

day of September, in the year of our Lord one thousand eight hundred and sixty-six, and of the Independence of the United States of America the ninety-first.

[SEAL.]

W. T. OTTO,
Acting Secretary of the Interior.

Countersigned and sealed with the seal of the Patent Office.

T. C. THEAKER,
Commissioner of Patents.

99 *The Schedule Referred to in These Letters Patent and Making Part of the Same.*

To all whom it may concern:

Be it known that I, Hiram Tucker, of Newton, in the county of Middlesex, in the State of Massachusetts, have invented a new and improved process or method for superficially bronzing or coloring iron, and have thereby produced a new article of manufacture; and I do hereby declare that the following is a description of my invention sufficient to enable those skilled in the art to practice it:

Metals have heretofore been lacquered or bronzed by the application of a solution of resin and metallic powders or salts, and dried by exposure to air or heat. Iron has been japanned by covering its surface with oily solutions of asphaltum and pigments and subsequent application of heat sufficient to produce hardness. These are well-known operations.

My invention consists in a new article of manufacture produced by covering iron with a very thin coating of oil and then subjecting it to heat, the effect of which is to leave upon the iron a firm film, which is very durable, and gives the iron a highly ornamental appearance, like that of bronze.

In practice I proceed as follows for the production of my new manufacture: The surface of the iron is cleansed from sand, scale, or other foreign matter, and where fine effects are desired the surface is best made smooth or polished. Under given conditions of heating and oiling the finer the polish the lighter is the bronze tint produced. In cases where ornamentation is obtained by relief the salient parts should be the most highly polished or most smoothly surfaced, in order that the color produced upon them shall not be so deep as it is on those parts which are in the rear, so as to imitate thereby more nearly the effects of genuine bronze, in which its natural oxidation is apt to be worn somewhat away from its salient parts, and therefore lighter in color. When the iron is thus prepared I cover it with a very thin coating of linseed oil, or any oil which is the equivalent therefor, for the purpose here specified (such a coat-
100 ing as I find best attained by applying the oil with a brush, and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement), and then place it in an oven, where it is submitted to a degree of heat which may be measured by an intensity sufficient to change a brightened surface of clean, unoiled iron to a color varying from a light straw color to a deep

blue, the lowest degree of heat producing the lightest colored changes and the lightest bronze, and the highest degree of heat producing the darkest colored changes and the darkest bronze. It is important that the coating of oil be made extremely thin, as a coating of any material thickness will leave a rough or varied surface after the heat is applied. As the oiled iron becomes heated, the color obtained will be bronze of an intensity corresponding to the degree of heat employed; but it should be observed that the heat may be made so intense and so long continued as to destroy the oil, in which case the iron will lose the bronze tint acquired, and will assume the dark-blue shade.

The perfection of the results obtained under these instructions will, of course, depend in a considerable degree upon the dexterity and watchfulness of the operator in applying the oil and in regulating the heat.

In practice I prefer to use boiled linseed oil. When the desired shade of bronzing is obtained, the iron is removed from the oven or furnace, and, if desired, may again be treated with oil as before, even if not cool, and then again submitted to the action of heat as described, and the operation of oiling and heating may be repeated indefinitely, each repetition deepening the shade of bronzing. I recommend that, at each repetition, the degree of heat should be less than the degree immediately before employed; and in oiling and heating more than once I recommend for the second and succeeding oilings the use of a dry hog-hair brush to take off the surplus oil. The process may be carried to such an extent by repetition of oiling and heating as to produce a very dark color.

Black even may be thus produced. I have specially described linseed oil as preferred by me for the production of my new manufacture, because of its good drying quality and its capacity
101 of giving a good, uniform, smooth film when spread thinly upon the iron, as before described.

Slight variations from the degrees of heat above mentioned may be allowed without materially changing the character of my manufacture.

What I claim and desire to secure by letters patent is the new manufacture hereinabove described, consisting of iron ornamented in imitation of bronze by the application of oil and heat, substantially as described.

HIRAM TUCKER.

Witnesses:
J. B. CROSBY.
FRANCIS GOULD.

Confirmed by Tho. J. Fisher, president of Tucker Manufacturing Company.

102 TUCKER EXHIBIT C. John C. Lane, Spec. Ex'r.

TUCKER *vs.* SARGENT.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of all assignments since the date of reissue up to and including December 31, 1879, recorded in the volumes as stated on the margin of each copy, respectively, and that said annexed copies have been compared by me with the originals, and that they are correct transcripts therefrom and of the whole of the originals.

In testimony whereof I, W. H. Doolittle, Acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this twenty-ninth day of January, in the year of our Lord one thousand eight hundred and eighty, and of the Independence of the United States the one hundred and fourth.

[SEAL.] W. H. DOOLITTLE,
Acting Commissioner.

Liber A 18, p. 454.

In consideration of one hundred dollars, in hand paid by Hiram Tucker, now or late of Newton, of the State of Massachusetts, the receipt of which is hereby acknowledged, The Tucker Manufacturing Company, a corporation duly established by the courts of the State of Massachusetts, does hereby assign, sell, set over, and convey to the said Hiram Tucker all the right, title, and interest of the said Tucker Manufacturing Company in the exclusive property covered
103 by certain letters patent of the United States of America as follows, to wit:

Reissue No. 2355, dated September 11, 1866, of letters patent No. 40964, dated December 15th, 1863, for an improved process of bronzing or coloring iron.

Reissue No. 2356, dated September 11th, 1866, of letters patent No. 40964, dated December 15, 1863, for an improved manufacture from iron in imitation of bronze.

Letters patent No. 90891, dated June 1, 1869, for an improvement in coating articles of iron ware.

The property hereby assigned to be held and enjoyed by the said Hiram Tucker as fully and effectively as the said company could hold and enjoy the same had this assignment never been made.

In witness whereof the said company, by its president, has hereto fixed his corporate seal, and the said president has hereto set his signature, this twenty-seventh day of August, A. D. 1872.

THE TUCKER MANUFACTURING COMPANY,
[SEAL.] By THO. J. FISHER,
President of said Company.

Witnesses:
H. W. BIGELOW.
CHS. LE BLANC.

Liber v. 20, p. 175.

Know all men by these presents that whereas letters patent of the United States, bearing date Dec. 15, 1863, and numbered 40964, were granted to Hiram Tucker, of Newton, in the State of Massachusetts, for an improved process for bronzing or *coring* iron, which letters patent were afterwards surrendered, and reissued letters-patent, in two divisions, numbered respectively 2355 and 2356, bearing
104 date September 11, 1866, granted in place thereof for the remainder of the term for which said letters patent were originally granted, both which reissued letters patent are now the property of the said Hiram Tucker;

And whereas letters patent of the United States bearing date May 24, 1870, and numbered 103,527, were also granted to said Hiram Tucker for an improvement in surfacing cast-iron, which letters patent are also the property of the said Hiram Tucker:

Now, therefore, I, the said Hiram Tucker, in consideration of the sum of ten thousand dollars to me paid by Walter Curtis and Charles M. Reed, both of Boston, Massachusetts, the receipt of which is hereby acknowledged, do hereby sell, assign, transfer, and set over to the said Curtis and Reed all the aforesaid letters patent and the inventions thereby secured, together with all rights of action and claims for damages and profits for the infringement of said letters patent, or either of them, which have accrued to me during my ownership of said letters patent, and all license fees and royalties due and unpaid for the use of the same.

To have and to hold to the said Walter Curtis and Charles M. Reed, their legal representatives and assigns, for their use and behoof, to the full end of the term for which said letters patent were severally granted, to be by them enjoyed as fully and completely as I myself could do had this assignment not been made.

In witness whereof I have hereunto set my hand and seal this twentieth day of June, A. D. 1876.

Signed, sealed, and delivered in presence of—

HIRAM TUCKER. [L. S.]

Liber H 2, p. 282.

Know all men by these presents that we, Benjamin R. Curtis, as administrator of the estate of Walter Curtis, deceased, and Charles M. Reed, both of Boston, in the State of Massachusetts, in consideration of one dollar paid by Hiram Tucker of Newton, in
105 said State, the receipt of which is hereby acknowledged, do hereby sell, transfer, and set over to the said Hiram Tucker all our right, title, and interest in and to the following-described letters patent of the United States, viz:

Reissues Nos. 2355 and 2356, dated September 11, 1866, being reissue in two divisions of letters patent No. 40964, granted to said Hiram Tucker December 15, 1863, for an improved process for bronzing or coloring iron.

Also letters patent No. 103,527, granted to said Hiram Tucker May 24, 1870, for an improvement in surfacing cast-iron.

Together with all rights of actions and claims for damages and profits arising out of any infringement upon said letters patent, or

either of them, and any and all license fee and royalties which may be due and unpaid for the use of the inventions described in said letters patent or either of them.

To have and to hold to the said Hiram Tucker, his legal representatives and assigns, to the full end of the terms for which said letters patent were respectively granted as fully and completely as the same are now held by us.

In witness whereof we have hereunto set our hands and seals this twenty-seventh day of January, A. D. 1877.

BENJ. R. CURTIS, *Admin.* [SEAL.]
CHAS. M. REED. [SEAL.]

In presence of—
J. J. McDAVITT.

106 TUCKER EXHIBIT E. John C. Lane, Special Examiner.

TUCKER *v.* SARGENT.

COMMONWEALTH OF MASSACHUSETTS, *Suffolk*, } *ss:*

PROBATE OFFICE.

I, Elijah George, register of the probate court in and for said county of Suffolk, hereby certify that at a probate court holden at Boston, in and for said county, on the twenty-fifth day of September, in the year of our Lord one thousand eight hundred and seventy-six, Benjamin R. Curtis was duly appointed administrator of the estate of Walter Curtis, late of said Boston, deceased, intestate, and gave bond to the acceptance of the judge of said court for the due performance of said trust according to law.

I also certify that it appears by the records and files of said court that said appointment is now in full force.

In witness whereof I have hereunto set my hand and the seal of said court this twenty-seventh day of October, in the year of our Lord one thousand eight hundred and eighty.

[SEAL.] ELIJAH GEORGE, *Register.*

COMPLAINANT'S EXHIBIT SARGENT LETTERS NO. 1 AND NO. 2. J. B. Mills, Special Examiner.

Sargent Letter No. 1.

NEW HAVEN, CONN., *Sept.* 20, 1876.

Mr. Hiram Tucker, Boston.

DEAR SIR: We have received your book of printed evidence in the case of Hiram Tucker *v.* The Tucker Manufacturing Company.

107 When you were here the other day and talked so positively about our infringing your patents I took it for granted that we had, unknown to me, been making a change from our old way, and had gone to infringing. I told you, however, I thought we were

clear. On investigation I find that we have not made the change; that we never did, and do not, infringe your patents.

We have never bronzed our work in the manner described in your patents.

Before ever doing any "bronzing" we obtained copies of your patents, and have kept clear of them.

Yours truly, S. B. SARGENT, *Pres.*

Sargent Letter No. 2.

Hiram Tucker, Esq.:

You have sent circulars of date June 16 more or less generally to at least one of our customers. That customer wrote us, and I replied that we should protect our customers in the sale of our goods. As I have several times said to you I am in favor of your compelling everybody but us and our make of goods to pay you a good sum as license; but I don't like to have our customers annoyed as to their right to sell goods made by us, nor do I want to publish a circular giving the reasons why, nor the evidence with which we can break your patent, but I do want you to make our competitors pay you at least twenty-five per cent. royalty. It seems to me that the best way to fix it is for you to sell us a license for the full term of your patents and any extension you may get from Congress. We will call the consideration one dollar, or ten per cent. on all our productions, payable quarterly, and then take your receipt for full payment, which I will keep confidential.

There is no nonsense in this proposition, and, if accepted, will be kept confidential.

Yours truly, J. B. SARGENT.

108 BOSTON, *Feb.* 17, 1881.

I hereby certify that the foregoing are *verbatim* copies of two letters put in vidence in connection with the deposition of Mr. J. B. Sargent taken in the case of Hiram Tucker *v.* C. A. Burditt *et al.* in May, 1880, then pending in the circuit court of the United States for the district of Massachusetts, and which have since been lost. Both letters were written on paper bearing the letter-head of Sargent & Co., and were admitted by Mr. Sargent to be in his handwriting.

My copy of letter No. 2 is not dated. The original was dated in the summer of 1879—I think in July.

CHAS. M. REED.

109 COMPLAINANT'S EXHIBIT D D D. J. B. Mills, Special Examiner.

HIRAM TUCKER *vs.* SARGENT & CO.

Motion for Injunction.

United States Circuit Court, District of Connecticut.

HIRAM TUCKER *vs.* SARGENT & CO.

Affidavit of Henry B. Sargent.

I, Henry B. Sargent, of New Haven, Conn., being of lawful age and duly sworn, depose as follows:

I am a graduate of the Sheffield scientific school of Yale College, in the laboratory of which I spent two years in studying and experimenting in chemistry and metallurgy to prepare myself for a position in the hardware works of Sargent & Co. in New Haven. I am accustomed to making scientific experiments, especially in metallurgy and those branches of chemistry connected with or affecting the manufacture, finishing, and ornamenting of hardware.

I have been in the employ of Sargent & Co. continuously since the year 1871, and since that time have had the general oversight of plating and bronzing the hardware made by that company, and know thoroughly and intimately those processes as carried on by that company since I first entered into its employ. I have read a certified copy of the affidavit of Hiram Tucker attached to a notice of a petition for a temporary injunction in the case of Sargent & Co. In describing the supposed process, by which he thinks the exhibits of the complainant, — Chamberlain Exhibit A and Tucker Exhibit A, Mr. Tucker is mistaken. They were bronzed by the following process: The sunken parts
110 of the butts, Complainant's Exhibit Defendants' Manufacture, were first covered with a black japan. This coat of blacking was baked in an oven at a temperature not exceeding 320 degrees Fahrenheit, leaving it as shown by Sargent's door butt, Exhibit A^1, which was treated in the same way. All but the sunken parts of the butt were then ground, as shown in Sargent's door butt, Exhibit D, and then subjected to a heat of 480 degrees Fahrenheit, which colored the iron to a dark straw color, as shown in Exhibit A^2.

Exhibit D has been covered with a shellac lacquer, to protect the bright surface of the iron.

Exhibit A^2 has never been oiled or varnished, but its color is due for the polished surfaces to heat only.

Tucker Exhibit A was subjected to a higher heat than Chamberlain Exhibit A, resulting in a color nearly or quite blue.

A coat of copal varnish of substantial thickness was then put on and hardened at a heat of not over 300 degrees Fahrenheit.

The object in this use of the varnish is for its lustre and to keep the butts from the oxidation which would result if an outer coat of copal varnish were not applied.

The heat at which the copal varnish was hardened in the Chamberlain and Tucker exhibits is, as I have stated, not over 300 degrees Fahrenheit.

I know this, because I have tried experiments for the purpose of ascertaining the degree of heat at which the color is reached which the copal varnish on said exhibits shows. I herewith present two exhibits marked X and Y respectively, which were prepared as follows: Exhibit X was coated with copal varnish of the same kind used upon the Chamberlain and Tucker exhibits; it was then subjected to a heat of 300 degrees Fahrenheit and no more, modifying the varnish slightly, and to the same extent as the varnish on the alleged infringing exhibits. Exhibit Y was coated with the same varnish subjected to the same heat, and differs from X only in the fact that the surface of the iron was oxidized by heat before applying the

varnish. Exhibits X and Y were done at the same heating. They show the degree of heat to which the copal varnish was subjected on the Chamberlain and Tucker exhibits of defendants' manufacture.

111 It has been found by the defendants that the best result is attained by a hardening varnish at a comparatively low degree of heat when the defendants' process is practiced. The defendants, therefore, have a special arrangement at their factory by which they secure this low degree of heat at the time when the copal varnish is being hardened. The kilns or ovens in which the heating is done are so constructed that, by withdrawing the partitioning iron plates in the bottom of the kiln, the heat from the hot-air furnace situated in the story below passes directly into the oven, and a heat is obtained of sufficiently high degree to color iron a straw color or dark blue. By closing the partitioning iron plates the heat is cut off so that the temperature is reduced in the oven, after which the copal varnish is hardened upon the oxidized surface of the metal at the heat and in the way which I have previously stated.

The process used by Sargent & Co. for their English-finish carriage-knobs is this:

The knobs are first ground and polished. Exhibit Sargent Carriage-knobs No. 0 (stamped "L" on plate) is a plate of carriage-knobs ground and polished only, never warmed. The knobs are then coated with a thin coat of English-brown varnish (the principal ingredient of which I understand to be linseed oil), thinned with spirits of turpentine. The knobs [are] then heated in an oven to about 450 degrees Fahrenheit for about twenty to twenty-five minutes. When they come from the oven after the first baking they present the appearance shown in Exhibit Sargent Carriage-knob No. 1 (stamped "T" on plate). They are again coated with a similar thin coat of English-brown varnish, thinned with spirits of turpentine, and again heated for about the same period and to about the same or a trifle higher temperature. After this second heating the knobs present the appearance shown in Exhibit Sargent Carriage-knobs No. 2 (stamped "O" on plate). It will be seen that the color is apparently black, but shows in the sunlight a purple tinge. The knobs are again coated with a like coat of English-brown varnish, thinned with spirits of turpentine, and again heated to about the same temperature and for about the same time as before, resulting in

112 a jet-black color, as shown in Exhibit Sargent Carriage-knobs No. 3 (stamped "S" on plate). Exhibit Sargent Carriage-knobs No. 00 is a plate of carriage-knobs (stamped "P" on plate) ground and polished and heated at the same time as Sargent Carriage-knobs No. 1, for the same period and to the same temperature, but unvarnished.

HENRY B. SARGENT.

Subscribed and sworn to before me this twenty-seventh day of March, 1880.

JOHN B. MILLS,
Notary Public.

113 COMPLAINANT'S EXHIBIT "AFFIDAVIT OF BROCKSIEPER."
J. B. Mills, Special Examiner.

TUCKER *vs.* SARGENT & Co.

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & Co.

Affidavit of Frederick W. Brocksieper.

I, Frederick W. Brocksieper, of the town of North Haven and State of Connecticut, being of lawful age and duly sworn, depose as follows:

I was born in the village of Gruene, adjoining the city of Iserlohn, in the Kingdom of Prussia. My father was a manufacturer of hardware in that village and made screws for the Holland market.

During the period of my minority I was employed some years in my father's factory. Screws for the Holland market were colored by rape-seed oil and heat to a color varying from a straw color to a brown, and I was employed at the work of coloring them. The screws in bulk had a small quantity of the oil put on them, and they were then thoroughly stirred together to have the oil well distributed. They were then taken in quantity, about a quart at a time, and put into a sheet-iron pan about eight or nine inches wide and fourteen inches long and two inches deep, having a hinged cover. The bottom of the pan was full of small holes, and it had a long handle. The pan with the screws in it was then held over a hot fire and shaken all the time, so that each screw might take a little oil. After the screws had acquired the proper color
114 they were poured out to cool and pack. The heat used was sufficient to turn the unoiled screws a straw color. Screws for the South German market were colored by me by the same process, but with longer continued heat, to a dark blue.

In the year 1847 I came to the United States, landing at New York. I worked at an ornamental iron works in New York for about a year, and then went to New Britain, Conn., in the employ of Peck & Walter, manufacturers of hardware, in which business I remained with the successors of that firm till in 1859, when I left and went into manufacturing hardware on my own account in New Britain, which I continued till 1861, when I removed with my family and business to the city of Montreal, in Canada. During all the time from 1849 till in 1859 I was employed by Peck & Walter and their successors in the finishing of hardware, and more especially of ornamental and fancy hardware.

In the year 1856, while in the employ of the Peck & Walter Manufacturing Company at New Britain, I bronzed the picture-frame put in evidence as Exhibit Brocksieper Picture-Frame in the following manner, viz: First, I had the iron casting thoroughly cleaned from dirt and scale, and the prominent parts ground and polished; I then brushed on a thin coating of linseed oil, and subjected the

oiled casting to a high degree of heat, which turned the unoiled back of the casting to a straw color and blue color, and the oiled face of the casting to a brownish color, to imitate real bronze of a considerable age. On a few more prominent places I then put a little varnish, and when the varnish was partly dry I touched the places with a copper-bronze powder. The frame is now in the same condition as when made. Nothing has been done to it since. From the time it was finished till I left New Britain it hung in my parlor at my residence there, was seen by the visitors, and the process of its coloring was explained by me to many. It held the picture of my father. While in the employ of the Peck & Walter Manufacturing Company in New Britain, previous to 1859, I bronzed looking-glass frames made of cast iron in substantially the same way as is described in bronzing the picture-frame Exhibit Brocksieper Picture-
115 Frame. I had the iron castings thoroughly cleaned, and the prominent parts ground and polished. I then covered the face of the frames and the stands with a mixture of copal varnish, linseed oil, and turpentine, put on thin with a brush. I then subjected them to a very high heat in the baking kilns, of from 450 to 500 degrees, which colored them to a brownish color, like what is called "Berlin bronze." A part of them I enlivened or made brighter by touching up some of the fancy work on the faces with gold-bronze powder. I know that several dozen of them were sold, while I was employed by the Peck & Walter Manufacturing Company, to workmen and neighbors in New Britain. I have quite recently looked through the old patterns of Sargent & Company, of New Haven, to find the patterns from which the looking-glass frames that I bronzed in New Britain were made. I found one small pattern, from which a few of those that I had bronzed were made. I had castings made from that pattern, one of which I have finished and bronzed and touched up with gold-bronze powder, as were some of those made by me in New Britain prior to 1859. The process of bronzing with heat, oil, and varnish was the same in all. I put these frames in evidence, marked Exhibit Brocksieper Looking-Glass Frame. In the year 1856, while I was employed by the Peck & Walter Manufacturing Company in New Britain, J. B. Sargent came to New Britain to reside, and took general charge of the business. He complained of the quality of the black japanned carriage-knobs made by the company, and had experiments made to improve them. Many unsuccessful experiments were made, ending with the adoption of the process of first grinding, filing, and polishing the iron-knob castings, then covering them with a thin coat of English brown varnish, thinned with spirits of turpentine, and subjecting them to a high heat. The first operation left them with a color varying from a dark straw color to a brown; the hotter the knob was made the darker was the color. Then the process was repeated till, after having three thin coats of the thinned brown varnish and three heatings, the color became a bright black.

Although this was not in my department, I watched the
116 process closely, and practised it afterwards in my own depart-

ment by bronzing with oil, varnish, and turpentine and heat various descriptions of hardware.

In the coloring of the carriage-knobs by varnish and heat the heat was as high as from 450 to 500 degrees Fahrenheit—sufficiently high to give a straw color to unoiled iron—and the same process of coloring carriage-knobs was continued regularly, so long as I remained in the employ of the company, to 1859.

Immediately, or very soon, after the successful experiments in coloring knobs new and larger kilns were built, with improved arrangements for heating. It was found necessary to control the heat and to know what it was. A thermometer was kept hung at a narrow place cut at the side of the door, over which was a strip of glass, so that the heat could be read through the glass. Thermometers registering 600 degrees or over were used; and the heat, when in use, was intended to be kept at from 450 to 550 degrees.

I bronzed coat and hat hooks, cupboard-catches, jam-hooks, and other articles, by substantially the same process, from 1857 to 1859, inclusive of a part of both years, which were shipped from the factory as other goods were.

The process was as follows: I selected well-cleaned and perfect castings, had the tips and prominent parts polished, and then covered them with a thin coat of a mixture composed of varnish and linseed oil thinned with spirits of turpentine. I then submitted them to a high heat in one of the kilns before described, keeping the heat sufficiently high to color the unvarnished iron a straw color or blue.

That process, with one heat, was called "antique bronze." The exhibits marked Brocksieper Antique are samples correctly representing articles so finished by me. Another variety of finish on the same description of articles was made by taking those with the antique bronze finish, subjecting them to another coat of the varnish-and-oil mixture, which was always applied with a small, stiff brush, giving them a warming heat, and touching the prominent points with bronze powder.

Exhibits marked Brocksieper Dark and Gold Bronze are samples correctly representing articles so made. They were called "dark and gold bronze."

117 Very considerable quantities of these articles like exhibits marked Antique and Dark and Gold Bronze were finished under my direction by the Peck & Walter Manufacturing Company, and shipped away from the factory with other goods before I left the employ of the company in 1859.

FREDERICK W. BROCKSIEPER.

DISTRICT OF CONNECTICUT, *ss:*

NEW HAVEN, *March* 24, 1880.

Subscribed and sworn to before me.

JOHN K. BEACH,
Notary Public.

118 United States Circuit Court, District of Connecticut.

HIRAM TUCKER *vs.* SARGENT & CO.

COMPLAINANT'S EXHIBIT AFFIDAVIT OF BRADFORD. J. B. Mills, Special Examiner.

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & CO.

Affidavit of Permont Bradford.

I, Permont Bradford, of New Haven, Conn., being of lawful age and duly sworn, depose as follows:

I am employed by Sargent & Company, the defendants in this case, and have been continuously employed by them and their predecessors for more than thirty years. The business was carried on in New Britain, Conn., till it was removed to New Haven in 1864. It was carried on in the name of the Peck & Walter Manufacturing Company, in New Britain, in 1855, while I was foreman of the iron foundry, when J. B. Sargent, who had been the selling agent of the Company in New York, removed to New Britain and took general charge of the business. He complained of the quality of the finish of the carriage-knobs made by the company, and requested me to make experiments, with a view of producing as good knobs as were imported from England. I made experiments, but at first without success. I failed to get the necessary bright black. I then learned that the English manufacturers used for coloring their knobs the English brown varnish, some of which I then obtained. I tried it,

119 but did not succeed in getting at first anything but brown color. I then learned that it was necessary to make the varnish very thin with spirits of turpentine, apply it very thin, and bake it at a high heat, repeating the process till the proper color should be obtained.

The baking-kiln used by me was the one used for black-japanning hardware with asphaltum blacking, and the heat of it was quite sufficient for that purpose. In size it was about six feet by three and one-half inside, and five feet high. The outer walls were of brick, with a sheet-iron lining, distant about two inches from the brick walls, thus leaving a space two inches deep completely surrounding the kiln, except at the door. In the middle of the external brick wall overhead was the smoke-flue, leading to a chimney. The fire was in a furnace, or fire-place, about twenty inches wide and three feet long, underneath the kiln. It was arched over the top with fire brick, and the smoke and heat from the fire escaped through openings in the sides of the fire-place into the space between the sheet-iron lining and the brick walls of the kiln, and passed off through the flue at the top. Anthracite coal was used for fuel. With this arrangement I could not get sufficient heat for coloring with English brown varnish, because the arch cut off the heat of the fire from the bottom of the kiln; and I altered the kiln by

taking out the brick arch over the fire, and cutting away the sheet-iron lining directly over the furnace, and in the place of the sheet-iron lining which I had cut away I substituted a cast-iron plate about two feet wide and two and one-half or three feet long. The change from sheet-iron to cast-iron was because the sheet-iron, when exposed to the direct action of so hot a fire, would not withstand the heat.

The cast-iron plate, which was directly over the fire, was kept red-hot.

With the heat so obtained I succeeded in getting the proper color on the knobs. The process was as follows:—

I selected perfect and well-cleaned knob-castings of iron, had them filed smooth in a lathe revolving at a very high speed, smoothing them with fine and well-worn files. I then coated them with a thin coat of English brown varnish, thinned with spirits of turpentine. I then subjected them to a very high heat near the red-hot plate of cast-iron in the before-described kiln. The knobs were placed in rows upon sheet-iron plates of size about twenty x twenty-four inches, punched with small holes to receive the shanks of the knobs. After the first heating, the plates with the knobs were taken out of the kiln, and the knobs had another thin coat of varnish applied, and then another heating as before, then a third coating of the varnish and another baking, which, under favorable circumstances, produced a bright black.

After the first heating the color was from a dark straw to a brown; after the second heating the color was from a dark, very dark brown to a black or very dark purple. The third baking generally produced a bright jet black.

The varnish was applied to the knobs with a brush after they were set up in the pans.

This process, or method, of producing what we called "English-finish" carriage-knobs was continued, and large quantities of knobs finished by this process were sold until the business was removed to New Haven, in 1864.

While I was at work making the "English-finish" carriage-knobs I bronzed with the same varnish, at the same heat, and in the same oven with the knobs, other hardware to a dark brown color, which were left in the office as samples of what I had done, and of what might be continued to be done, by the same process.

After I succeeded in the above process of coloring, new kilns were made as early as in 1857, in one of which the above-described process of English finishing was carried on.

The new kilns were built in such a manner as to give great heat, and thermometers were used in one or both to indicate the temperature.

Thermometers with a capacity of indicating 600 degrees Fahrenheit were used and were necessary.

In 1857 Mr. Sargent became sole proprietor of the business, and I became superintendent, having, as special duty, the charge of the real estate, buildings, and fixtures, procurement and arrangement of the machinery, giving orders for the supplies, and a general over-

sight of the manufacturing—a position which I now hold in the business.

121 Mr. F. W. Brocksieper was employed in the business for many years up to 1859. He was particularly employed in finishing and ornamenting fancy figured hardware and in silver-plating.

After I had succeeded in coloring knobs by the process above described he colored other goods for the company by substantially the same process, using the new heating-kilns, in which he heated the varnished iron goods. He colored cast-iron looking-glass frames for toilet stands by the same process, one of which I bought and had in use in my family, and it has been on my premises from the time it was made until within two years of the present time. The finish was that of exhibit marked Brocksieper Looking-Glass Frame. I remember that quite a number of them were sold to employés of the company.

Other hardware, such as coat and hat hooks, cupboard-catches, jamb-hooks, etc., were bronzed in substantially the same manner while F. W. Brocksieper was in the employ of the company, prior to 1859, by him, or under him, as foreman, and were sent away from the factory like other hardware. Coloring iron hardware by thin coatings of varnish and high heat continued as a part of the business of the company till the removal of the business to New Haven in 1864, when it was discovered that no good results could be obtained by varnish and the highest heat that could be got in the ovens that Mr. Sargent had put in at New Haven, and, as there seemed to be no place on the premises where direct fire-heated kilns could be built and used without considerable fire-risk, that branch of the business was temporarily given up; but, soon after the confusion of the removal and getting settled was over, one of the steam-heated ovens was removed, and a small fire-heated oven was put in its place. Soon afterward new baking-kilns were built on the other side of the street, and the business of coloring hardware by varnish and heat was resumed, and has been continued till now.

I have read the affidavit of Henry B. Sargent in this case, in which he describes the process of coloring "English-finish" carriage-knobs now used by Sargent & Company. Mr. Sargent, in his deposition, refers to sundry exhibits as illustrating the pro-

122 cess, beginning with Exhibit Sargent Carriage-knobs No. O, up to the finished knob "Exhibit Carriage-knob No. 3." I was present while these exhibits were being treated as Mr. Sargent describes. I carefully watched all the details, and the process therein shown as at present used by Sargent & Company for coloring "English-finish" carriage-knobs is identically the same as that used by me at New Britain, as I have above narrated.

PERMONT BRADFORD.

DISTRICT OF CONNECTICUT, } ss:
New Haven, }

Subscribed and sworn to March 25, 1880.

JOHN K. BEACH,
Notary Public.

123 United States Court, District of Connecticut.

HIRAM TUCKER *vs.* SARGENT & CO.

COMPLAINANT'S EXHIBIT AFFIDAVIT OF SARGENT. J. B. Mills, Special Examiner.

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & CO.

Affidavit of J. B. Sargent.

I, J. B. Sargent, of New Haven, being of lawful age and duly sworn, depose as follows:

I was a merchant doing business in the city of New York and personally attending to that business to the first of May, 1856. While doing business in New York I received for sale large quantities of the hardware of Peck, Walter & Company and their successors, the Peck & Walter Manufacturing Company, of New Britain, Conn., consisting in part of black-japanned carriage-knobs.

On or about the first day of May, 1856, I went to New Britain to reside (having purchased considerable of the stock of the company), and took charge of the manufacturing, though quite ignorant of it.

Large quantities of English-made black carriage-knobs had been, and still continued to be, imported, and, on account of their superior finish and color, sold for a very much higher price than American-made black knobs.

Feeling determined, if possible, to have knobs manufactured and finished and colored equal to the English knobs, I obtained
124 samples of them and requested Mr. Permont Bradford, the foreman of the iron foundry, to make such experiments as might be necessary to attain that end. I have read the deposition of Mr. Bradford in this case; and what he has stated therein in reference to his coloring knobs and other hardware is true of my own knowledge. His experiments were my own first important experiences and investigations in the hardware manufacturing business; and I took much interest in those experiments and the results with other goods that followed the discovery then so made, that polished iron covered with a thin coating of an oily varnish and subjected to a very high heat became beautifully bronzed.

In the following spring of 1857 I had a small brick building erected expressly for the purpose of heating-kilns, and the attending work, in which I had built two baking or heating kilns, each larger than the one before used, and with much better facilities for obtaining high heat.

The business of coloring the "English-finish" knobs was carried on in one of them, using the process described in the deposition of Permont Bradford, which was polishing the knobs, and then covering them with a thin coat of English brown varnish thinned with spirits of turpentine, and subjecting them to a high degree of heat,

the coating and heating being repeated twice after the first process, and the heat as high as 450 degrees Fahrenheit.

"English-finish" carriage-knobs thus finished and colored became from that time, and still remain, a regular article of manufacture and sale by the Peck & Walter Manufacturing Company, of New Britain, in 1856, to the present time, by Sargent & Company, of New Haven, their successors.

Immediately after the erection of the aforesaid new heating-kilns, which were arranged for and equipped with thermometers graduated for a heat of 600 degrees Fahrenheit and over (none graduated for less than 600 degrees were used), the company began to color their "English-finish" carriage-knobs in them by the process described in the deposition of Permont Bradford, and soon after, while so doing, began and continued the bronzing of sash-fasteners in the same manner as bronzing the knobs as aforesaid, with the same material, applied in the same manner and subjected to the same heat, but coated and heated only once.

Exhibit "Sargent's Sash-fasteners" are sash-fasteners of the description so bronzed. They are cast-iron. At the same time the Peck & Walter Manufacturing Company manufactured the same description of sash-fasteners in wrought sheet-brass, which were bronzed by chemicals under the direction of F. W. Brocksieper, and the color of the bronzed iron sash-fasteners was intended to be near the color of the chemically-bronzed brass sash-fasteners. I have not been able to find a brass sash-fastener of this description, and, therefore, offer Exhibit "Bronzed Brass," which is a piece of wrought sheet-brass bronzed by the same process as were the bronzed brass sash-fasteners. These sash-fasteners were known as "Sargent Burglar-proof Sash-fasteners," and were the joint invention of F. W. Brocksieper and myself, and patented in 1858.

Quite large quantities of said cast-iron bronzed sash-fasteners were made and sold by the Peck & Walter Manufacturing Company during the employment of F. W. Brocksieper by that company, prior to his leaving, in 1859, and the business was continued without interruption till the establishment was removed from New Britain in 1864. During the time from in 1857 to 1864 very considerable quantities of other hardware were made and sold that were bronzed by substantially the same process, particularly described in the deposition of F. W. Brocksieper (in this case), which deposition I have read, and I know of my own knowledge that that part relating to bronzing looking looking-glass frames, coat and hat hooks, cupboard-catches, jamb-hooks, etc., by him are true. He had the general charge of finishing fancy hardware till he left to go into business for himself in the year 1859. I well remember being called upon for new thermometers during the employ of Mr. Brocksieper prior to his leaving, in 1859, to replace those that had been burst by the heat in the heating-kilns in which iron articles were being heated, the bursting being caused by the vaporizing of the mercury in the tubes while during some windy day the heat had, unnoticed, run so high as the vaporizing point of mercury.

The business of bronzing or coloring iron articles of hardware

126 by the process of thoroughly cleansing the surface from sand and scale (and usually polishing the prominent surfaces), covering the surface with a thin coating of oily varnish, and then subjecting the articles to so high a heat as would turn the color of bright unoiled and unvarnished iron to a straw color, has been continued by the Peck & Walter Manufacturing Company and its successors from the year 1856 to the present time without interruption except for a short time after May 1, 1864. I became the owner of all the stock of the Peck and Walter Manufacturing Company in the year 1858, but continued the business in the name of that company, afterwards in the name of the Peck & Walter Manufacturing Company, J. B. Sargent & Company, proprietors, then as J. B. Sargent & Company, to July, 1864.

Beginning in May, 1863, and to May, 1864, I built very largely in New Haven, to which place the manufacturing business was removed May 1, 1864. The upland purchased in New Haven was entirely covered with buildings, except passages necessary for carting, etc., between the buildings. It was considered by me very important to guard against fire risk; and baking ovens are, at best, dangerous as to fire, especially when the gas made in the process of heating varnished surfaces becomes confined in contact with red-hot stoves. Some large manufacturers had then recently adopted the use of steam to heat their japanning-ovens, the Wheeler and Wilson Manufacturing Company, of Bridgeport, being one of them; and the parties who built and steam-piped the ovens for that company convinced me that steam-heat was just what was wanted for heating the kilns that I proposed to build for heating and coloring iron. I had no knowledge as to the temperature of steam-heat, and did not inquire; but, relying upon the statements of men practical in steam-heating, I had heating-kilns built and heated by steam. They were built immediately over the steam-boilers that furnished the steam-power for the whole works, and not more than five feet above. They were built of brick, with an inside lining of plaster-of-paris, were lined with steam-pipes as close together as they could be placed, and connected in the most improved manner directly with the boilers under-
127 neath. Steam was used at a pressure of 70 lbs. to the square inch, indicating a temperature of over 300 degrees Fahrenheit.

After repeated attempts at bronzing hardware in these kilns as we had been accustomed to bronze it in New Britain, and not succeeding for want of sufficient heat, and there being no other place on the premises where other kilns could be built in safety as to fire risk and convenient for use, the bronzing of hardware was temporarily suspended.

During the latter part of the war (of 1860 to 1865), and immediately afterward, there was a considerable and increasing demand for real bronzed hardware, and consequently an increased demand for the cheaper or imitation bronze hardware of cast iron. We removed one of our steam-heated kilns and put in its place a small sheet-iron double-walled oven that was heated by an anthracite-coal fire in a furnace suspended by iron rods in the boiler-room underneath. It proved to be inconvenient in use, although the heat was sufficient,

and bronzing or coloring by heat was continued in a small way for a short time there. Not long afterwards we built a heating-kiln and furnace on filled-in ground on the opposite or harbor side of the street. The building in which it was placed was of wood, and the construction of the furnace and oven having been such as would not be dangerous as to fire proved not to be favorable to getting high heat.

The foreman in charge of the bronzing—a man of long experience with ornamental coloring, varnishing, etc.—found that by using bronzing mixtures slightly colored, and with quick dryers, high heat was not only unnecessary, but that low heat answered every purpose as to bronzing general hardware and made a great saving in fuel, in repairs of furnace, of discomfort to the employés, and consequently of wages.

This plan has been continued to the present time upon all articles except "English-finish" carriage knobs. The requirements for a first-class carriage-knob are that the surface should be brilliant in color, with a firm, unyielding surface that will neither wear nor break under the blows of the hammer in driving or other hard usage, and that will not yield to time, sun, or moisture in any
128 weather. A varnish having in it very considerable oil, or nearly all oil, put on in very thin and repeated coats, and each coat baked at a high heat, is necessary for the best grade of carriage-knobs.

Bronzed door-butts were not made by us in those years. The process by which these butts are and always have been bronzed by Sargent & Company since they began to make them to the present time is correctly described in the deposition of Henry B. Sargent in this case.

J. B. SARGENT.

DISTRICT OF CONNECTICUT, *ss:*

NEW HAVEN, *March* 24, 1880.

Subscribed and sworn to before me.

JOHN K. BEACH,
Notary Public.

129 United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & Co.

COMPLAINANT'S EXHIBIT "PERKINS' AFFIDAVIT." J. B. Mills, Special Examiner.

Motion for Injunction.

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & Co.

Affidavit of Newton W. Perkins.

I, Newton W. Perkins, being duly sworn, depose and say that I am forty-one years of age, and reside in the city of New Haven.

During the years from 1857 to September, 1861, I was employed in the packing-room of the factory at New Britain, Conn., of which Mr. J. B. Sargent had charge.

I have read the affidavit of Frederick W. Brocksieper, given in this case, and have examined the exhibits referred to by him, marked Brocksieper Antique and Brocksieper Dark and Gold Bronze. I recognize the coat and hat hooks, cupboard-catches, and jamb-hooks composing those exhibits as being identical in style and finish with articles of merchandise made by the company during all those years, and very considerable quantities of articles of the same style and finish as the Brocksieper Exhibits Antique and Dark and Gold Bronze passed through the packing-room, and were packed by me for the market, and went from the factory for sale in common with other articles made and sold by the company.

130 I have also examined the sash-fastener marked Exhibit Sargent Sash-fastener, and I recognize it as being identical in style and finish with a sash-fastener made by the company between 1857 and September, 1861, and of which very considerable quantities passed through the packing-room, and were packed by me for the market, and were shipped from the factory for sale in common with other articles made by the company.

In September, 1861, I enlisted for the war, and remained in the army until April, 1866.

NEWTON W. PERKINS.

DISTRICT OF CONNECTICUT, *ss:*

NEW HAVEN, *March* 23, 1880.

Subscribed and sworn to before me.

JOHN K. BEACH,
Notary Public.

131 United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & CO.

COMPLAINANT'S EXHIBIT "ATKINS' AFFIDAVIT." J. B. Mills, Special Examiner.

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & CO.

Affidavit of Thomas J. Atkins.

I, Thomas J. Atkins, of the city of Brooklyn, N. Y., being of lawful age and duly sworn, depose as follows:

I was a salesman, selling hardware for Sargent & Company in New York from 1857 to 1861, and was quite familiar with the hardware manufactured by the Peck & Walter Manufacturing Company, of New Britain, Conn., sold by Sargent & Company, their selling agent in New York.

I have heard read the deposition of Frederick W. Brocksieper given in this case and have examined the exhibits he refers to, marked Brocksieper Exhibits Antique Bronze and Dark and Gold Bronze, and I have also heard read the deposition of J. B. Sargent given in said case and have examined the exhibit he refers to, marked Sargent's Sash-fastener.

Among the goods received from the Peck & Walter Manufacturing Company from 1857 to 1861 were coat and hat hooks, cupboard-catches, jamb-hooks, and sash-fasteners, bronzed and finished
132 in the same style as the exhibits above mentioned. These manufactures were a regular article of sale during all that period and samples of them were on the sample-board of the firm.

THOMAS J. ATKINS.

Subscribed and sworn to before me this 25th day of March, A. D. 1880.

JAMES SURPLESS,
Notary Public, Kings Co., State of New York.

133 COMPLAINANT'S EXHIBIT "GEORGE H. SARGENT'S AFFIDAVIT."
J. B. Mills, Special Examiner.

TUCKER *vs.* SARGENT.

United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & CO.

Affidavit of George H. Sargent.

I, George H. Sargent, of the city, county, and State of New York, being of lawful age and duly sworn, depose as follows:

I am a hardware merchant, doing business in said city of New York from the year 1854 to the present time, first as a member of the firm of Sargent Brothers & Company and from the year 1857 as a member of the succeeding firm of Sargent & Company of New York.

During all of said time said firms successively were selling agents in New York for the Peck & Walter Manufacturing Company of New Britain, Conn., and their successors, J. B. Sargent & Company and Sargent & Company, of New Haven. Up to February, 1862, I was personally occupied in selling hardware at our store in New York, then located at No. 85 Beekman street, from which location we removed May 1, 1863.

Among the hardware received from the Peck & Walter Manufacturing Company and sold by me while I was personally occupied as a member of the firm of Sargent & Company, of New York, as before stated, in selling hardware, were coat and hat hooks and jam or curtain hooks and sash-fasteners.

134 The darker coat and hat hooks without the gold-colored garnishment we called antique bronze, and those with the

gold-colored garnishment were called dark and gold bronzed and antique and gold bronzed.

I have examined the exhibits referred to in the affidavits of Frederick W. Brocksieper and by J. B. Sargent, marked, respectively, Brocksieper antique bronze, Brocksieper gold and brown bronze, and Sargent's sash-fastener. They are accurate models of the style, finish, and color of the articles of manufacture sold by my firm as a regular article of sale, as above stated, for some years prior to 1862.

GEORGE H. SARGENT.

Subscribed and sworn to before me this 25th day of March, A. D. 1880.

JAMES SURPLESS,
Notary Public, Kings Co., State of New York.

135 *Evidence for Defendants.*

HIRAM TUCKER *vs.* CHARLES A. BURDITT *et al.*

Deposition of Purmont Bradford.

Direct examination by CHARLES E. MITCHELL, Esq., of counsel for defendants.

Int. 1. What is your name, age, residence, and occupation?

Ans. Purmont Bradford; age, 61; residence, New Haven; occupation, superintendent of Sargent & Co.

Int. 2. How long have you been in the employment of Sargent & Co. and their predecessors?

Ans. Thirty-three years.

Int. 3. Will you please give the name or names of the predecessors of Sargent & Co.?

Ans. L. Nathan Peck, Peck & Walter, Peck & Walter M'f'g Co., J. B. Sargent & Co.

Int. 4. Where was the business carried on by the parties you have named?

Ans. New Britain, Conn.

Int. 5. Was the business carried on at New Britain by Sargent & Co., or was the name changed when the business was removed to New Haven?

Ans. It was changed, after moving to New Haven, from J. B. Sargent & Co. to Sargent & Co.

Int. 6. When was this removal made?

Ans. I think it was in 1864; moved to New Haven in 1864.

Int. 7. Do you remember when Mr. Sargent came to New Britain; and, if so, when was it?

Ans. He came to New Britain in 1856.

136 Int. 8. What was your position in the factory at that time?

Ans. I was foreman in the iron foundry.

Int. 9. How long after he came to New Britain did you continue as foreman, and, if you ceased to be foreman, in what capacity did you then act?

Ans. As near as I can remember it was about one year that I acted as foreman in the iron foundry after he came there. I was superintendent. I was appointed in 1857 and have remained superintendent ever since.

Int. 10. In whose name was the business carried on in 1856 and during the three or four succeeding years?

Ans. Peck & Walter M'f'g Co.

Int. 11. Was the article of carriage-knobs among the manufactures of Peck & Walter at this time?

Ans. They *was*.

Int. 12. If any change was made in the manufacture of this article, after Mr. Sargent came to New Britain, will you please state when that change was made, and state in detail of what it consisted.

Ans. Soon after Mr. Sargent came there he wanted some English-finish knobs done equal to the English finish. He got some English brown varnish. He wished me to make some knobs for him, and I took some knobs, cleaned them, had them polished, gave them a very thin coating of this brown varnish thinned with turpentine, and baked them in a japan kiln, took them out a straw-brown color, and those that got the most heat were the darkest; gave them another coat after they were cool, same as first, put them into the kiln again and baked them a second time, found they were still darker, and then the third time done them the same as the first by coating them over with brown varnish; baked them the third time and got them black, or nearly so. That completed the knobs.

Int. 13. Have you any specimens representing the different stages which you have described of this process of manufacture; and, if so, will you please produce them and state in the order of the process how the specimen representing each stage is marked?

137 Ans. The plate marked Exhibit "O O" represents the knobs polished and cleaned and ready for the application of the brown varnish. On the plate marked "A B," the six middle knobs having had one coat of brown varnish thinned with turpentine, were then put into a kiln and baked 40 minutes at 430° Fahr. The four end ones are not varnished at all. "C D" was tested the same as "A B," and after it was taken out there was a second coat put on the six middle knobs, and nothing on the end ones, and was then heated 510° Fahr. I did not keep the exact time on that how long it was in. "E F" was tested the same as "A B" and "C D," and each time the six middle knobs were then varnished, a third time placed in a kiln for 45 minutes at 530° Fahr.

Int. 14. How were the carriage-knobs made by Peck & Walter M'f'g Co. made or finished prior to Mr. Sargent's coming to New Britain?

Ans. They were japanned with common asphaltum japan.

Int. 15. How did the thickness of the aggregate of these three coatings of thin brown varnish which you have described on the English-finish knobs compare with the thickness of a single coat on the knobs japanned with the common asphaltum japan?

Ans. To the best of my judgment it is less than half the thickness.

Int. 16. You say that the knobs which got the most heat were the darkest. How did you apply the heat?

Ans. I had a furnace under the japan kiln. The fire was built under the japan kiln. There was a square box built up of brick some five and a half or six feet, I should guess, about 3 or 3½ feet deep. Inside of this brick-work was sheet iron put, which left a flue completely around it of about two inches. It left a space two inches around it and took the draught from this furnace up into the chimney. Where the flues come out from this furnace the heat was the greatest, and the nearer these flues the knobs were put the darker they would be. The inside of this furnace was covered with brick, but to get the heat more intense I removed the brick and laid in a plate of cast iron, and found the heat was better—higher. That is the way I baked the knobs.

Int. 17. Was the heat before you made the change adequate for baking the knobs coated with the common asphaltum japan?

138 Ans. It was.

Int. 18. After this change was made in the kiln of which you have spoken were there any, and what, structures erected affording better facilities for heating, and, if so, what were they and when constructed?

Ans. In 1857, I think, Mr. Sargent made some more kilns and and them so arranged that they gave better satisfaction.

Int. 19. Having reference now to the first kiln in which you made the change you have described, can you tell to what degree of heat the knobs were subjected?

Ans. I cannot, only by the color of the knobs—did not have any thermometer; that is all I had to guide me.

Int. 20. Were all parts of the knobs covered with this thin varnish of which you have spoken?

Ans. No, sir. Only covered the top surface; only all that shows above these plates (pointing to the exhibits).

Int. 21. Did you observe whether the color of the metal of that portion of the knobs not covered by the varnish was, at the time you were using the first-changed kiln, affected by the heat to which they were subjected, and, if so, to what extent?

Ans. The first baking gave them a dark straw color; the second baking the bluish color; the third baking would give it generally a very dark blue.

Int. 22. When the new kilns were put up by Mr. Sargent in 1857 was there any means, in using those kilns, of ascertaining the degree of heat to which the knobs were subjected, and, if so, what were they?

Ans. They had thermometers, to register, I think, about 600° Fahr.; the same as some I have had that measure 600° Fahr.

Int. 23. Who, after you became superintendent, had the active management of this process [of] producing English-finish carriage-knobs?

Ans. Mr. F. W. Brocksieper had the general oversight of the bronzing and finishing of the hardware, ornamenting, etc.

Int. 24. If I understand you right, the change from using the

common asphaltum japan to the process you have described
139 as being represented by these exhibits was made by you while you were foreman and before you became superintendent. Is that right?

Ans. It was; yes, sir.

Int. 25. And about how long before you became superintendent?

Ans. I should say about the neighborhood of a year.

Int. 26. How was the polished surface on the knobs represented by the Exhibit "O O" produced, as made by you when you were foreman of the factory?

Ans. Polished in a lathe by files, and if they were not sufficiently smooth used sand-paper on them.

Int. 27. What, if anything, do you know of the coloring of articles of manufacture other than the knobs of which you have spoken, at New Britain, during the period while you were foreman of the factory and before you became superintendent?

Ans. I took coat and hat hooks, common catches, and some other articles—I could not tell all the articles—two sizes of coat and hat hooks, and some cupboard-catches, had them rolled bright, gave them a thin coating of English brown varnish thinned with turpentine, baked them the same as exhibit knobs "A B," which gave them very nearly the same color as that exhibit.

Int. 28. What did you do with these articles you so colored?

Ans. Took them to the office and gave them to Mr. Sargent.

Int. 29. What, if anything, do you know as to Mr. Brocksieper's using this process for the coloring of articles of iron manufacture after you ceased to be foreman and became superintendent?

Ans. The most I know about his doing so is that he produced similar colors, which had the appearance of being done by the same process.

Int. 30. To what articles was this process applied by Mr. Brocksieper, so far as you recollect?

Ans. Coat and hat hooks, jamb-hooks, looking-glass frames, cupboard-catches, too numerous to mention, to go through the whole detail, without a price-list.

Int. 31. Can you describe the process which Mr. Brocksieper used, and say wherein, if at all, it differed from the process you
140 were accustomed to use upon the coat and hat hooks you made while you were foreman, as you have stated?

Ans. I don't know that I ever stood and watched him through all the mixing of the material, but the general appearance of the thing was the same as I had used previously.

Int. 32. Have you any articles present representing the coat and hat hooks you have described as made by yourself and Brocksieper?

Ans. Those two (referring to coat and hat hooks produced) this jamb-hook represents jamb-hooks made by Brocksieper. I did none of those. (Witness produces jamb-hook.) He made looking-glass frames in appearance like these (producing two looking-glass frames.)

(Counsel for def't places in evidence the coat and hat hooks referred to by witness, and they are marked, respectively, Defendant's

Exhibits "H" and "H²," I. Bell, N. P.; also the jamb-hook referred to by witness, which is marked Defendant's Exhibit "G," I. Bell, N. P.; also the looking-glass frames referred to by the witness, which are marked, repectively, Defendant's Exhibits "I" and "I²," I. Bell, N. P. Counsel for defendant also introduces in evidence the exhibits referred to by the witness in answer to the 13th interrogatory, which are marked, respectively, Defendant's Exhibits "O O," "A B," "C D," and "E F," I. Bell, N. P.)

Int. 33. State whether any different means were employed by you from the means afterward employed by Brocksieper to smooth the salient faces of the iron before applying the thin coat of varnish.

Ans. There was. I used to put mine into a tumbling barrel with what is called scratches—small pieces of iron—and tumbled them until they were bright. Those done by Mr. Brocksieper were done in the same way, but he took emery-paper or sand-paper and rubbed off the high surfaces to make it appear like ancient bronze—antique bronze he called it. That is all the difference that I know of.

Int. 34. State whether the tumbling barrels with the scratchers made the raised edges smoother and brighter than the depressed portions.

Ans. They did, considerable.

Int. 35. You have described the process of ornamenting or
141 coloring iron articles, to which you say Mr. Brocksieper gave the name "antique bronze." Was there any further treatment to any of these articles; if so, what was it, and produce specimens if you have them?

Ans. In some articles we made what was called brown and gold by tipping the high edges with gold after they had been treated with a coat of varnish called "tack" to hold the gold on. I have some specimens, and produce them—two coat and hat hooks, two looking-glass frames, and a jamb-hook.

(Counsel for defendants places the articles produced by witness in evidence, and the coat and hat hooks are marked, respectively, Defendant's Exhibits "J" and "J²," I. Bell, N. P.; the looking-glass frames are marked, respectively, Defendant's Exhibits "K" and "K²," I. Bell, N. P.; the jamb-hook is marked Defendant's Exhibit "L.")

Int. 36. Was there any difference between the goods made by the antique process and the goods known as brown and gold, except the "tipping" the high edges with the "gold" bronze?

Ans. That is all the difference.

Cross-examined by CHARLES M. REED, Esq., of Counsel for complainant:

Cross-int. 37. Please describe in detail the process of finishing carriage-knobs with asphaltum varnish used at Peck & Walter Co. before the improved process which you have described.

Ans. The sand was rolled off, and they were put into a pan and shaken up with japan and set on to sheet-iron pans; took a brush

and just touched over the tops where the finger-marks showed from setting them in; baked in a japan kiln.

Cross-int. 38. Were the knobs heated before the japan was applied?

Ans. No, sir.

Cross-int. 39. Was the asphaltum japan used clear or diluted; if so, with what?

Ans. It was not diluted unless it had stood and got thick. When it was too thick we thinned it with spirits of turpentine.

Cross-int. 40. How was this asphaltum japan prepared?

142 Ans. Sixty pounds of asphaltum, I think, was the rule, four or five gallons of linseed oil, fourteen gallons of turpentine; it might vary a little from it.

Cross-int. 41. What degree of heat did you use in baking the knobs covered with this asphaltum japan?

Ans. I haven't any means of knowing just the heat. I had no thermometer in the kiln.

Cross-int. 42. How long did the baking take?

Ans. We built the fire about five o'clock in the afternoon and it would be baked off before morning.

Cross-int. 43. What was the color of the knobs after being coated with the japan, and before baking?

Ans. It was dark brown.

Cross-int. 44. And after being taken from the oven what was the color?

Ans. Black.

Cross-int. 45. In what respect did the appearance of these knobs differ from that of those made with the English brown varnish?

Ans. The blacking on them was heavier, thicker, so that when they undertook to drive them it would flake off, while the other was very thin and very tough and would not flake by driving.

Cross-int. 46. In other respects was the appearance the same?

Ans. Not as good a gloss on the japanned as upon the English finished; the castings were not as smooth.

Cross-int. 47. Did you continue to japan knobs by the old process you have described after you commenced the use of English brown varnish?

Ans. We did.

Cross-int. 48. Do you still use that process?

Ans. We do.

Cross-int. 49. Have you made any modifications in that process?

Ans. We have.

Cross-int. 50. Please describe them.

Ans. We heat the knob before putting it into the japan.

Cross-int. 51. When did you first adopt this modification?

Ans. It was between 1864 and 1866. I could not give you the exact time.

143 Cross-int. 52. Do you know whether or not this process of japanning carriage-knobs is the same as that practiced by other manufacturers of carriage-knobs?

Ans. I do not.

Cross-int. 53. In describing the oven used in japanning with asphaltum japan, I understand you to say that the flues passed around the oven in which the knobs were placed. Did they completely surround the oven on all sides but the bottom?

Ans. Front and back did not.

Cross-int. 54. What material was used for heating this oven?

Ans. What we called Lehigh coal then.

Cross-int. 55. Was there more than one oven of this kind at the Peck & Walter Co.?

Ans. No, sir.

Cross-int. 56. Where was it situated?

Ans. In the yard back of the main building.

Cross-int. 57. Were there any other ovens or kilns on the premises?

Ans. Not for japanning. There was for other purposes.

Cross-int. 58. If there were any other ovens or kilns then used for any purpose, please state how many such ovens there were and for what they were used.

Ans. There were annealing kilns; I don't know of any others.

Cross-int. 59. For what purpose were they used?

Ans. For annealing iron.

Cross-int. 60. What articles of iron were annealed in these kilns?

Ans. Any that happened to be hard, as we were making general hardware.

Cross-int. 61. Give some instances of the kinds annealed in these kilns.

Ans. Furniture casters, coat and hat hooks, and numerous articles. I can't mention them all; anything that we had to drill, if we came across anything hard we had to anneal.

Cross-int. 62. Was the only object in annealing these articles to make the metal softer and more easily worked?

144 Ans. That was all.

Cross-int. 63. Where were these kilns?

Ans. In the building attached to the foundry.

Cross-int. 64. How did they differ in construction form the japan kilns you have?

Ans. They were built of brick, furnaces in the side.

Cross-int. 65. How hot were these kilns usually heated?

Ans. We heated the work until it was red.

Cross-int. 66. You say that the furnaces were built in the side of the kilns; of what material were the furnaces made and what was the arrangement of the flues and chimneys connected with them?

Ans. The furnaces were built of fire brick; the flame passed over the top of the work and through it into the floor; passed under the floor twice and into the chimney.

Cross-int. 67. By work do you mean the articles to be annealed?

Ans. Yes.

Cross-int. 68. I understand that the furnaces opened directly into the kilns; am I right?

Ans. Yes.

Cross-int. 69. How soon after Mr. Sargent removed to New Brit-

ain did you commence your experiments with English brown varnish on carriage-knobs?

Ans. Very soon. I should say from one to two months after that. It was very soon after he came up there. That is the best answer I can give to it.

Cross-int. 70. How long did these experiments continue?

Ans. I could not say whether it was two weeks or five weeks. It wasn't long—a very short time.

Cross-int. 71. Did you receive instructions from Mr. Sargent as to the method of using this English brown varnish?

Ans. I often showed him the samples and consulted him. I don't know whether I ever received any definite instructions from him.

Cross-int. 72. You say that Mr. Sargent got some English brown varnish and wished you to use it in making knobs. Did he not tell you how the varnish was to be used?

145 Ans. I don't remember that he did.

Cross-int. 73. Did you consult with any one else on the subject?

Ans. I did not.

Cross-int. 74. How did you first use the varnish after receiving it from Mr. Sagent?

Ans. Put it on to the knobs with a brush, after diluting it thin with spirits of turpentine.

Cross-int. 75. Then what did you do? Please describe in full how you first japanned knobs with this varnish.

Ans. After giving them a thin coat I placed them in the oven to bake. After baking them they were a dark straw color. I showed them to Mr. Sargent, and then I gave them another coat of same material and baked them in same oven. I showed them to him after they were baked the second time; then I took them back and gave them another coat, same as before, and baked them a third time; most of them were good; some of them, where the heat was not as good, were not black enough. Those I did a fourth time. That was all the experiments that I made at that time.

Cross-int. 76. Then, if I understand you, this process of japanning knobs by repeated thin coatings of the English brown varnish, and exposing the knobs after each coating to a considerable degree of heat, was contrived by you immediately, you having received no other instructions than simply to use this English brown varnish in finishing black japanned knobs; am I right?

Ans. Yes; I received no instruction, but I might have consulted Mr. Sargent about the matter, and I presume I did.

Cross-int. 77. Did you receive any suggestions or advice from him on the subject before commencing these experiments; if so, what?

Ans. The only instructions that I remember was to get a thin coating on them to imitate the English knob.

Cross-int. 78. How did the thickness of the English brown varnish before dilution compare with that of the asphaltum japan?

Ans. That is a question I could not tell exactly, because there

were so many stages of the asphaltum japan; I should think it was about the same when it was first made.

146 Cross-int. 79. I intended to ask for a comparison of the thickness of the undiluted English brown varnish with that of the asphaltum japan when ready to be put upon the knobs. With that understanding, please make the comparison.

Ans. They were about the same thickness, but the English varnish is sticky and wouldn't leave the brush as thick.

Cross-int. 80. How do the six middle knobs in Exhibit "A B" compare, in color and appearance, with the first knobs which you treated with this English brown varnish as they came out after their first heating?

Ans. I think they are very similar to them.

Cross-int. 81. Why did you withdraw them from the kiln at this stage of the heating?

Ans. We let the fire go out as usual and emptied the kiln.

Cross-int. 82. Were these knobs baked by themselves or in a kiln with the asphaltum knobs which you were then manufacturing?

Ans. I could not say that there were any other knobs in the kiln, but there was general hardware baked in the same kiln.

Cross-int. 83. And were each of the successive heatings to which these first knobs were subjected made in the same way, in the oven with other articles of manufacture?

Ans. They were. I always put these next to the flue where it came out from the furnace.

Cross-int. 84. You say that one object which you had in view was to get a thin coating on the knobs as distinguished from the thick coating of asphaltum japan on the knobs you were then manufacturing. Why did you not reheat the varnished knobs without recoating them or leave them in an oven a longer time?

Ans. It didn't sufficiently cover up the turn marks, the polish marks.

Cross-int. 85. Did you try the experiment of putting on a thicker coating of the varnish?

Ans. I did.

Cross-int. 86. With what result?

Ans. It would chip off.

147 Cross-int. 87. How thick coatings did you use in this last experiment?

Ans. I couldn't say how thick it was. I only judged from taking it to the light and stirring it up until I judged it was right.

Cross-int. 88. Your object, then, in putting on these repeated thin coatings and hardening each of them separately was to produce a coating which would adhere more tenaciously to the iron than a thick coat would do put on and heated once; am I right?

Ans. Yes.

Cross-int. 89. Are you a japanner by trade?

Ans. I learned to do all parts of the hardware business when I was a boy.

Cross-int. 90. What experience had you had in the use of japan and varnishes upon iron before experimenting with this brown varnish?

Ans. I generally made the asphaltum japan, and I always tried it to see if it was right.

Cross-int. 91. Is that all?

Ans. I sometimes varnished work as occasion might require. I never made it my business.

Cross-int. 92. Do you still japan krobs by the use of English brown varnish at Sargent & Co.'s by the process you have described?

Ans. We do.

Cross-int. 93. Do you use the same kind of English brown varnish?

Ans. I never knew but one kind.

Cross-int. 94. Where do you procure this varnish?

Ans. It is more than I can tell you; it is purchased for me. I do not buy the material.

Cross-int. 95. In what kind of vessels does it come to the factory?

Ans. Cans.

Cross-int. 96. Are these marked with the name of the manufacturer or seller, or both?

Ans. Never noticed any mark on them other than English brown japan.

148 Cross-int. 97. By whom is the varnish purchased for use at the factory of Sargent & Co.?

Ans. I couldn't say. Mr. Baldwin is our purchasing agent now and Mr. Sargent sometimes buys.

Cross-int. 98. What is Mr. Baldwin's full name and where does he reside?

Ans. C. L. Baldwin. He resides on College St. in New Haven.

Cross-int. 99. Do you know the difference between varnish and japan as these terms are commonly used in the arts?

Ans. I do.

Cross-int. 100. Will you please state that difference?

Ans. Brown japan has the appearance of oil more than common copal varnish and is considerable lighter in color than black japan.

Cross-int. 101. Please explain a little more fully what you mean by saying that brown japan has more the appearance of oil than copal varnish?

Ans. Oil is brown, not as light color as varnish.

Cross-int. 102. When you speak of oil do you mean raw linseed oil?

Ans. Boiled linseed oil.

Cross-int. 103. This English brown varnish which you have spoken of is in fact a japan, is it not?

Ans. I couldn't say, for I don't know the way in which it is manufactured.

Cross-int. 104. You do not know its composition then, or whether it is a japan or a varnish, if I understand you correctly?

Ans. It is called by different names; some call it varnish and some japan. It has more the appearance of varnish than japan; for that reason we generally call it varnish. I don't know anything of its composition except by its appearance.

Cross-int. 105. How soon after the commencement of your experi-

ments was the alteration in the japanning oven made which you have spoken of?

Ans. I couldn't say the time definite. I should not say it was over ten days. It might not have been more than a week.

149 Cross-int. 106. How soon afterwards were the new ovens you have spoken of built?

Ans. I couldn't say exactly, but I should say perhaps it might have been a year.

Cross-int. 107. How, if any, did they differ in construction from the first oven?

Ans. I think there was a square brick box built like, with a cylinder furnace in it, as far as my recollection serves me. My recollection about that is not so good as about the other, because I did not work in it. I could not describe it as well.

Cross-int. 108. About how large were these?

Ans. I couldn't give the exact size, but I should think it might be deeper than the old one—that is, reaching further back.

Cross-int. 109. Were these kilns built under your superintendence?

Ans. They were built when I was superintendent, but I did not superintend building the kilns.

Cross-int. 110. Who did?

Ans. I am not certain. Mr. Brocksieper had charge of the iron ornamentation, and, I presume, he might have had charge of that part of it. I could not say, however; it is so long ago.

Cross-int. 111. You were then general superintendent for Peck & Walter M'f'g Co., were you not?

Ans. Mr. Sargent was general superintendent and I was superintendent under him. He was general manager.

Cross-int. 112. What were your duties as such superintendent?

Ans. Looking after the contractors, machinery, etc.

Cross-int. 113. Can't you give your duties a little more in detail?

Ans. It was looking after the pattern-makers, the patterns until they reached the foundry, general oversight of the machinery, and the buildings generally. I can't give any better detail of it than that.

Cross-int. 114. Would not the matter of building new kilns be done under your superintendence, as you say you had charge of the buildings?

Ans. The building of them might, but the construction would be left with the man who was going to use them.

150 Cross-int. 115. You did know, as matter of fact, how and for what purpose they were built?

Ans. I might have known; still I cannot call it to my mind now just how they were built; I knew they were built for ornamenting iron, japanning, and different colors.

Cross-int. 116. They were so built, if I understand you, that they could be heated to a higher degree than the japanning oven before you made the alterations in it?

Ans. I never heard any complaint of the heat and supposed it was all satisfactory.

Cross-int. 117. Were either of these new kilns used for baking the English-finish carriage-knobs?

Ans. I think they were. I never used them myself.

Cross-int. 118. And for this purpose, if I understand you, a higher degree of heat was necessary than could be obtained in the old japanning oven, before the change was made in it, except close to the furnace?

Ans. Yes.

Cross-int. 119. Do you know what kind of kilns were used for japanning by other manufacturers at that time?

Ans. I don't know that I do. I don't remember any now.

Cross-int. 120. Was your experience and observation on that subject confined entirely to the work of the Peck & Walter M'f'g Co.?

Ans. No, sir.

Cross-int. 121. With what other similar manufacturing establishments were you at all familiar?

Ans. Sam'l Booth, New Britain, prior to 1837. After that, Wm. B. Booth, his successor.

Cross-int. 122. What other manufacturing establishments making japanned goods were located in New Britain from 1856 to 1864?

Ans. Russell & Erwin, Stanley Works, P. & F. Corbin, I think, Humason & Beckley. I don't remember any others. Yes, there was Judd, who made some hardware. I don't think of any others.

Cross-int. 123. Don't you know what kind of japanning kilns were used in any of these concerns?

151 Ans. I do not.

Cross-int. 124. Do you know whether your processes of japanning were the same as those used by any of these concerns?

Ans. I do not.

Cross-int. 125. In your answer to Int. 18 you say that Mr. Sargent made some more kilns in 1857, and "had them so arranged as to give better satisfaction." In what respect was the old kiln unsatisfactory?

Ans. In the old kilns the heat was not distributed evenly. We had to place the knobs in the bottom of the kiln to heat them.

Cross-int 126. Do you mean that the knobs could not be baked the proper color in any other part of the kiln except near the bottom?

Ans. I do. I refer to the kiln after the change was made.

Cross-int. 127. In this old kiln how large a portion of the bottom was made of iron after the alteration?

Ans. I should think the plate was about two feet by three and a half. I should think it left about two feet on each side and ran to the back of the kiln.

Cross-int. 128. And this plate, if I understand you, was usually heated to a red heat while the knobs were baking?

Ans. In places; not all over.

Cross-int. 129. How near were the knobs placed to this plate?

Ans. I should think from twelve to fourteen inches, if my memory serves me.

Cross-int. 130. Were they placed only immediately over the plate

or were they also placed over the portions of the bottom of the oven which were made of brick?

Ans. That part of the oven which wasn't covered by the iron plate was covered by sheet-iron, which formed this flue.

Cross-int. 131. Were the knobs placed across the whole width of the kiln?

Ans. They were not.

Cross-int. 132. Were they then placed only directly over the cast-iron plate; if not, how?

Ans. I generally used two plates to put them on, about twenty
152 by twenty-four inches, and placed side by side, so that they reached a little over the sides of the plate.

(Adjourned.)

NEW HAVEN, *April* 30, 1880.

Cross-int. 133. What degrees of heat did you use in baking the English-finish knobs in the new ovens, which you say were made in 1857?

Ans. I couldn't say. I never done any in the new ovens.

Cross-int. 134. When the company removed to New Haven in 1864, were new buildings erected for its use?

Ans. Yes.

Cross-int. 135. Had you anything to do with planning the arrangements of these new buildings?

Ans. No more than to consult with Mr. Sargent about them and advise with him.

Cross-int. 136. What kind of ovens were placed in these buildings for japanning?

Ans. Brick ovens.

Cross-int. 137. How were they heated; what was the size and construction of them?

Ans. They were heated by steam. The size, I should judge, was about 6 feet or 5½ feet square.

Cross-int. 138. How was the steam applied?

Ans. From the steam boilers.

Cross-int. 139. And how were the steam pipes arranged in the ovens?

(Objected to by counsel for defendant as not material or relevant, the witness not having testified to the application of English-finish or antique bronze in the steam kiln first used in New Haven.)

Ans. They were in return coils on the bottom of the kiln or oven. I think that all the pipes there were were on the bottom. I couldn't say whether there was any on the sides or not.

Cross-int. 140. Under what pressure was steam used in these ovens?

Ans. From 60 to 70 pounds.

153 Cross-int. 141. Were there thermometers used in connection with these ovens?

Ans. There was one put in each of the two ovens; they were soon broken.

Cross-int. 142. To what degree were these ovens heated by steam?

Ans. I have no recollection now; all I can judge about it is that they baked off our general japan ware; the thermometers were broken by the swinging of the doors.

Cross-int. 143. What do you mean by general japan ware?

Ans. Coat and hat hooks, etc.; it dried it rather than baked it.

Cross-int. 144. What kind of japan was used on these goods?

Ans. After we came to New Haven we purchased our japan; it was black japan; that is all I know about it.

Cross-int. 145. The japan goods so baked were packed and sent from the factory for sale in the same way as those previously made at New Britain, were they not?

Ans. They were, excepting the carriage-knobs.

Cross-int. 146. Did you make any carriage-knobs in these ovens?

Ans. We did.

Cross-int. 147. Before these ovens were put in did you have any consultation with Mr. Sargent or any one else on the subject?

Ans. I did with Mr. Sargent.

Cross-int. 148. How long did you use these steam ovens?

Ans. I think we took them out inside of three years—one of them at least.

Cross-int. 149. And until that time you used them in your general japanning?

Ans. We did.

Cross-int. 150. You say one was taken out; how long was the other used after the first was taken out?

Ans. I think they were all taken out inside of five years; it might not be more than four; I want to correct that; the oven was not taken out, but the pipes were taken out of the last one we changed; I want to correct one more thing—we had three of
154 those ovens instead of two; we moved two of them out entirely; the third one we only took the pipe out of.

Cross-int. 151. Previous to Mr. Sargent's giving you the English brown varnish to use in japanning knobs had you made any experiments with a view to improving the quality of the knobs which you made?

Ans. We had.

Cross-int. 152. Please state what you did in that direction.

Ans. The company did that I worked for. I, personally, did not do anything about it until Mr. Sargent came.

Cross-int. 153. You say this was done by the company. Who actually conducted the experiments?

Ans. I can't tell you who was in the japan shop at that time. I think it was Mr. Lynch. I know he was there off and on in the japan room. I cannot give his full name; he was called "schoolmaster;" that is all I know about him.

Cross-int. 154. Do you know, as a matter of fact, what was done to improve the quality of the knobs at that time, and, if so, state as fully as possible?

Ans. We made two qualities of knobs—tried to—one which was to represent the English, and didn't succeed; the others were what

we call the common carriage-knobs, and which we had always made. In attempting to make the English finish the knob was polished and japanned with common asphaltum japan. That is all I know about it.

Cross-int. 155. The only difference, then, between these knobs and what you call the common ones was that the former were polished. Is that so?

Ans. Yes.

Cross-int. 156. Were any of these knobs sold as English-finish knobs prior to your use of the English brown varnish?

Ans. Not to my knowledge. I did not sell the goods.

Cross-int. 157. Did you, as matter of fact, at this time make two grades of knobs?

Ans. To call up every item so far back is a little taxing on my mind; but, if I am not mistaken, sometimes knobs finished for Eng-
155 lish finish were packed up as common, because they were not good enough. I was not connected with the finishing before that and could not go into details, only as I occasionally observed things.

Cross-int. 158. If I understood you correctly, the first lot of knobs which you tried with the English brown varnish were successfully japanned by the process you have described, namely, cleaning and polishing the iron, covering it with a thin coat of the English brown varnish diluted with turpentine, baking it to a yellowish-brown color, and then repeating the varnishing and heating two or three times, until the black surface was produced; am I right?

Ans. It was before I got through with them. I might not have done it the first time of trying it. I wouldn't say that.

Cross-int. 159. As a matter of fact, did you or not experiment in japanning the knobs with this varnish in other ways before adopting the process above described?

Ans. I did not.

Cross-int. 160. What suggestions, advice, or instruction of any kind did you receive from Mr. Sargent, or from any one else, or from any source, as to the manner of using this English brown varnish in japanning carriage-knobs?

Ans. I have no recollection of receiving any information except what I received from Mr. Sargent. I often talked the matter over. I think he said the lock folks had used it; used more than one coat, or something to that effect. Just what the conversation was I could not say.

Cross-int. 161. Is that the only suggestion you now remember to have received on the subject?

Ans. It is all that I remember, though I might have received many. I can't say now.

Cross-int. 162. Had you made any experiments, at Mr. Sargent's request or under his direction, to improve the quality of the finish of the knobs made by the company, prior to these experiments with the English brown varnish?

Ans. I had not.

Cross-int. 163. You have recently given an affidavit on this

156 subject in the suit of Hiram Tucker *vs.* Sargent & Co., now pending in the circuit court of the United States for the district of Connecticut, have you not?

Ans. I have.

Cross-int. 164. Will you examine the paper now shown you, which purports to be a copy of such affidavit, and see if you recognize it as a copy of the affidavit so made by you?

Ans. From inspection it appears to be a copy.

Cross-int. 165. In this affidavit, after speaking of Mr. Sargent's removal to New Britain in 1856, you say "he complained of the quality of the finish of the carriage-knobs made by the company, and requested me to make experiments with a view of producing as good knobs as were imported from England. I made experiments, but at first without success. I failed to get the necessary bright black. I then learned that the English manufacturers used for coloring their knobs the English brown varnish, some of which I then obtained. I tried it, but did not succeed in getting at first anything but brown color. I then learned that it was necessary to make the varnish very thin with spirits of turpentine, apply it very thin, and bake it at a high heat, repeating the process until the proper color should be obtained." Do you now desire to make any change to your answer to cross-int. 162, or to any previous interrogatory on the subject?

Ans. I will correct that in one sense: I tried to improve some by varnishing.

Cross-int. 166. Please state fully how you treated those knobs by varnishing.

Ans. I took some japanned ones and just gave them a coat of white varnish.

Cross-int. 167. In your first experiments with the brown varnish how much did you dilute it?

Ans. I couldn't tell exactly; made it quite thin. I will say, in my first experiment I put it on thick, and did not succeed at all. That was the very first knob done.

Cross-int. 168. In your subsequent experiments what proportion of spirits of turpentine did you use in diluting the varnish?

157 Ans. I couldn't tell now just the proportion; I thinned it to make it spread easy and cover the surface.

Cross-int. 169. How did you apply it to the knobs?

Ans. With a brush.

Cross-int. 170. After you commenced the manufacture of these English-finish knobs for sale did you bake them by themselves, or have other goods in the oven at the same time?

Ans. Had other goods in the oven at the same time.

Cross-int. 171. How long did each baking last?

Ans. I built the fire about five o'clock in the afternoon, and it generally went out before morning; removed the goods in the morning.

Cross-int. 172. Then it took three nights to bake any given lot of knobs?

Ans. It did.

Cross-int. 173. Was this the case also after the new ovens were made in 1857?

Ans. To the best of my knowledge it was; I don't know that we ever baked any less than three bakings; we have sometimes had to bake them four times; some pieces of them might not be properly heated—might not be black enough.

Cross-int. 174. You have testified to preparing certain articles of hardware—coat and hat hooks, etc.—with the English brown varnish, which were left at the company's office; do you know what became of those articles?

Ans. I do not.

Cross-int. 175. Prior to this time how had such articles been finished by the company?

Ans. They were japanned, some bronzed, green bronze, and other colors which I could not name now exactly—gold; I could not describe all the colors now; it is so long ago.

Cross-int. 176. By japan do you mean black japan?

Ans. I do.

Cross-int. 177. You speak of bronze; how were the goods finished which were called by this name?

158 Ans. I could not tell you, as I was not in that department. The bronze generally was powder bronze; the process I could not go through with.

Cross-int. 178. How long is it since you have seen the articles finished with the English brown varnish which were left at the company's office?

Ans. I couldn't give you a definite time. I saw them in the office once or twice after I left them there, perhaps several times.

Cross-int. 179. Are you willing to swear that any of these exhibits produced by you exactly represent those which you say you left at the company's office, in the character and color of their surfaces?

Ans. I wouldn't say exactly. These are polished; mine were only polished by the rolling barrel, and were not quite as smooth; otherwise they resemble them.

Cross-int. 180. Aside from the smoothness of the surfaces are you willing, after this lapse of time, to testify positively now as to the color and shade of color of the articles which you left at the company's office?

Ans. As near as it is possible to carry it in my mind.

Cross-int. 181. You have not had your attention called specifically to the appearance of this particular lot of goods until recently, for many years, have you?

Ans. I have often. Mr. Sargent has often referred to them to me in ta-king them over.

Cross-int. 182. When and on what occasions?

Ans. I coudn't say, only it was when we were making bronze work.

Cross-int. 183. State as nearly as you can when this subject of this lot of goods has been discussed by you and Mr. Sargent, and in what connection.

Ans. I couldn't tell now; at different times; I couldn't tell when.

Cross-int. 184. You have talked with him a great deal, I presume, in connection with the subject of the "Tucker bronze," so called, or Mr. Tucker's claims in reference to his process?

Ans. I have talked with him, but not a great deal, for he is a man of very few words.

159 Cross-int. 185. How long ago did you first talk with him on the subject? State as nearly as you can.

Ans. I couldn't tell how long ago. It might be ten or twelve years ago, more or less.

Cross-int. 186. And at this time was anything said by either of you as to the goods which you say are represented by these coat and hat hooks produced by you here as exhibits, or the process of finishing the same?

Ans. I couldn't say as to that.

Cross-int. 187. Do you remember ever talking with Mr. Sargent about Mr. Tucker's process, and comparing it with that used upon the goods represented by these exhibits before the present year, 1880?

Ans. I do remember of talking with him before; how long ago I can't say.

Cross-int. 188. State as nearly as you can.

Ans. I should say it must be ten or twelve years ago.

Cross-int. 189. Did either of you then express an opinion as to the similarity of the two processes?

Ans. We did.

Cross-int. 190. Please state what that opinion was.

Ans. I couldn't tell it now just word for word, but we talked it over; not the similarity of the doing, but the similarity of the goods. I did not know what his manner of doing them was.

Cross-int. 191. Do you mean that, in your opinion, at that time the articles made by yourself and Mr. Brocksieper, and which you have testified are represented by these exhibits, coat and hat hooks, etc., were the same in appearance as those finished by Mr. Tucker's process and known as "Tucker's bronze?"

Ans. I don't know that I ever saw one piece of "Tucker bronze" in my life. I might have seen it but not known what it was.

Cross-int. 192. In your answer to cross-int. 190 you speak of talking of the similarity of the goods as distinguished from the similarity of the process. What goods did you have reference to which you compared with those made by yourself and Mr. Brocksieper?

Ans. Had a paper weight which they told me was Tucker's
160 bronze. It was polished. Could not compare it with this rough work—it was fancy work.

Cross-int. 193. In your answer to cross-interrogatory 189, you say on this occasion either you or Mr. Sargent expressed an opinion as to the similarity of the two processes, and, in answer to the next interrogatory, you say it was not the similarity of the doing, but the similarity of the goods, to which that opinion related. Will you now please state what that opinion was?

Ans. They resembled one another somewhat, except ours was rougher; theirs fancy work.

Cross-int. 194. Did either of you express an opinion whether these

two classes of goods were or were not substantially the same in the character of their finish?

Ans. I couldn't say that we did.

Cross-int. 195. Have you stated as fully as you can the opinion expressed by you or Mr. Sargent on this occasion in reference to the comparison of these two classes of goods?

Ans. I think I have.

Cross-int. 196. And you don't remember that either of you expressed any opinion as to whether the finish was substantially the same in character or not?

Ans. I do not; we might and we might not. I don't recall just the conversation now.

Cross-int. 197. When were articles finished like those represented by these Exhibits "G," "H," and "H²" first manufactured by the Peck & Walter Company for sale?

Ans. I don't think they were ever made with that finish until Mr. Sargent had charge there. I never saw any like them before that.

Cross-int. 198. How soon after Mr. Sargent went to New Britain and took charge there were articles finished like these exhibits made for sale?

Ans. I couldn't tell how long. I saw them in the packing room soon after. I should say within a year or a year and a half, something like that.

Cross-int. 199. And from that time until the removal of
161 the company to New Haven were goods finished in this way manufactured for sale to any considerable extent?

Ans. I couldn't say to what extent, but they were manufactured.

Cross-int. 200. During this was this one of the standard styles of finish?

Ans. It was.

Cross-int. 201. By what name was it called?

Ans. Antique bronze.

Cross-int. 202. How long did goods continue to be made in this style by the Peck & Walter Co., or its successors?

Ans. Till they moved to New Haven.

Cross-int. 203. Have they made them since?

Ans. They have made part of the goods. They have not made any of the jamb-hooks since. They went out of date.

Cross-int. 204. Do they still continue to manufacture goods under this name?

Ans. I think not.

Cross-int. 205. When was it abandoned? State as nearly as possible.

Ans. I couldn't tell without referring to our price list.

Cross-int. 206. State as nearly as you can.

Ans. Well, I should say it was abandoned soon after we came from New Britain.

Cross-int. 207. When did the company commence manufacturing goods under the name of "Berlin bronze?"

Ans. I couldn't give the exact date; I should say it was in the neighborhood of two or three years after we came to New Haven.

Cross-int. 208. Are the casting of these exhibits, "H," "H²," "J," "J²," "L," and "G" of the same paterns as the articles made by yourself and Mr. Brocksieper in New Britain?

Ans. They are. I did not do any of L and G.

Cross-int. 209. Were these exhibits last mentioned prepared by you?

Ans. They were not.

Cross-int. 210. Were the exhibits "A B," "C D" and "E F," prepared by you or under your supervision?

Ans. They were prepared under my supervision. I was
162 present all the time they were being prepared.

Cross-int. 211. When and where were they being prepared?

Ans. Sargent & Co.'s. They were finished Wednesday morning.

Cross-int. 212. Were there any others done at the same time?

Ans. I think there was one or two plates more; I couldn't say how many.

Cross-int. 213. Where are they?

Ans. At the factory; I left them there at least. I don't know what has become of them.

Cross-int. 214. Will you ascertain where they are, and if you can find them produce them before the examiner?

Ans. I will, if it's required.

Cross-int. 215. What material was used in preparing these knobs?

Ans. English brown varnish thinned with turpentine.

Cross-int. 216. What proportion of turpentine was used in thinning the varnish?

Ans. I couldn't say, as I did not measure it. I stirred it and held it up to see if it were of the proper thickness.

Cross-int. 217. What enabled you to determine when it was of the proper thickness?

Ans. Only from my good judgment.

Cross-int. 218. You say "proper thickness;" what do you mean by this expression?

Ans. Thick enough to give the goods a clean coating of the material.

Cross-int. 219. You mixed this varnish, or had it mixed, for the special preparation of these exhibits, did you not?

Ans. I did.

Cross-int. 220. And you understood that these knobs were to be prepared for use as exhibits in this case, did you not?

Ans. I did.

Cross-int. 221. I understand the company is still making carriage-knobs by this process. Is that so?

Ans. Yes, sir.

Cross-int. 222. Where were these knobs baked?

163 Ans. They were baked in one of our bronzing kilns.

Cross-int. 223. Were they baked by themselves, or were there other articles in the kilns?

Ans. There was two other articles in the kiln; that is all, I believe.

Cross-int. 224. In describing the process of baking, you gave the time of baking the knobs on the plate marked "A B" as forty minutes and those on the plate "E F" as forty-five minutes; but you say you did not keep the exact time that the knobs on the plate "C D" were in the oven. About how long, to the best of your judgment, were these latter knobs in the oven during the second baking?

Ans. Now, I couldn't tell, but it might have been two hours, perhaps longer.

Cross-int. 225. In the practical manufacture of these English-finish knobs at the present time what is the length of time of each of the three heatings?

Ans. It depends altogether on the amount of heat they have. Sometimes it takes longer and sometimes shorter. They open the door and examine.

Cross-int. 226. What is the usual time?

Ans. I couldn't tell. I should judge from an hour to two hours for each baking. I don't have the immediate charge of it now.

Cross-int 227. Were you present when a quantity of similar knobs were prepared for use as exhibits in the case of Hiram Tucker *vs.* Sargent & Co., some weeks ago?

Ans. I was.

Cross-int. 228. Were they prepared in the same way as these exhibits?

Ans. They were, except there might be difference in the time they were in the oven.

Cross-int. 229. I understand that Mr. Brocksieper left the employment of J. B. Sargent & Co. in 1859. Who had charge of bronzing, japanning, and other ornamentation of metal after he left?

Ans. A man by the name of Smith. I think that was his name. I can't give his first name.

164 Cross-int. 230. Can you give his full name?

Ans. I cannot. It has gone from me. My impression is that it was Henry.

Cross-int. 231. Can you ascertain what his name was?

Ans. I have no means of ascertaining that I know of.

Cross-int. 232. Do you know where he can be found?

Ans. I do not. The last I knew of him he kept a garden down near where the depot is. That was soon after we came to New Haven.

Cross-int. 233. How long did he continue in charge of this department?

Ans. Came to New Haven with us.

Cross-int. 234. Can you give me the names of any other persons who were employed at the company's — between 1856 and 1864?

Ans. Yes. John Wright, Henry Gladden, a man by the name of Bryan Fagan. I don't remember the names of any others now.

Cross-int. 235. Are these men still employed at Sargent & Co.'s?

Ans. No.

Cross-int. 236. In what department were they employed while there?

Ans. Mr. Fagan was employed in the caster room; Wright and Gladden were employed in the brass finishing room.

Cross-int. 237. Do you know where these men are now?

Ans. I do not. I believe two of them are dead; Wright and Gladden I heard were dead.

Cross-int. 238. How many men were employed by the company at that time?

Ans. I couldn't say. I should say there might have been seventy-five, perhaps one hundred and perhaps more.

Cross-int. 239. And of these can you not recollect the names of more than three?

Ans. There were two Parkers, brothers, whose names have now come to me; don't remember their first names. There was a man by the name of Porter worked there; had several Smiths in the foundry —Jas. Smith, John Smith, Michael Smith. If I had time I could think up some of them, I guess (Mr. Sargent here suggests Red
165 Reily, and witness says) yes, there were two Rileys. There was Amzi Steele. I don't think of any other now, but might if I had time enough.

Cross-int. 240. Will you refresh your recollection on this subject, and at some future time, during the taking of testimony in this cause before the examiner, bring in before the examiner a list of names of such persons as you can recollect or ascertain to have worked at the company's — at any time between the years 1856 and 1864, giving in each case the full name if possible, also the department in which they worked and their present address?

Ans. I will as well as I can, if required.

Cross-int. 241. Was the process of japanning English-finish knobs at New Britain practised secretly, or was it known generally to men employed at the factory?

Ans. It was not done secretly. I don't know how generally the men knew it.

Cross-int. 242. Were workmen, other than those engaged in doing the work, permitted to witness the process?

Ans. We never allow men to go from one room to another only as work called them.

Cross-int. 243. Were persons not employed in the factory allowed to witness this process?

Ans. We didn't allow any one in the factory only those that worked there.

Cross-int. 244. About how many men were employed at a time in the japanning department?

Ans. One man; sometimes there would be a boy or two or a girl or two.

Cross-int. 245. And how many were employed in the department where this antique bronze *which* was applied?

Ans. About the same number, one man.

Cross-int. 246. Which of these departments did Smith have charge of after Mr. Brocksieper's departure?

Ans. Bronzing, silver plating.

Cross-int. 247. Who had charge of the japanning at this time?

Ans. Mr. Lynch, I think.

166 Cross-int. 248. You have spoken of some picture frames made by Mr. Brocksieper about the year 1856. Do you know of your own personal knowledge how they were made?

Ans. I do not other than by their appearance. I had one in my possession, but it has gone out of my possession within two years.

Cross-int. 249. When did you obtain it?

Ans. I should think as early as the last of 1856.

Cross-int. 250. Was this after or before your experiments on carriage-knobs with the brown varnish?

Ans. I should think it was after.

Cross-int. 251. What has become of that frame?

Ans. I put it into the scrap iron. I broke the glass.

Cross-int. 252. Had the raised surfaces on this frame been covered with gold powder?

Ans. They had not.

Cross-int. 253. Do you know what has become of any other of the frames made by him at that time?

Ans. I do not.

Cross-int. 254. Where was this frame kept while in your possession?

Ans. In my house. I broke the glass; then I laid it up in the barn, thinking I might get a glass put in some time.

Cross-int. 255. Whereabouts in the house did you keep this frame?

Ans. I kept it in my chamber.

Cross-int. 256. How many similar picture frames made by Mr. Brocksieper did you ever see?

Ans. I couldn't say. It might be ten, and it might be thirty or more.

Cross-int. 257. When did the company commence the manufacture of iron butt hinges finished in imitation of bronze? State as nearly as you can.

Ans. They commenced the manufacture of butt hinges in about, or a little less than, three years after we came down, but when we commenced on the bronzed ones I can't say from recollection.

167 Cross-int. 258. You have referred several times to the price lists of goods made by the Company. Have you in your possession such price lists of dates between 1856 and 1864? If so, will you produce them to be referred to as evidence in this case?

Ans. I don't know that I have them. I don't think that I have.

Direct examination resumed:

Int. 259. Was there any less publicity in applying the process that you call English finish than in conducting any other operation in the shop?

Ans. No, sir.

Int. 260. Was the same true of the antique bronzing?

Ans. Yes, sir.

Int. 261. If I understand you, the process which you have described of ornamenting carriage-knobs, which consisted in applying a thin coat of brown varnish to the polished knob and baking it at a heat which oxidized the metal, and then repeating the process, as you have described, has been practised by the Peck & Walter M'f'g Co., and their successors, at New Britain and New Haven, from 1856 to the present time, with the exception of the period just after the removal to New Haven, when steam heat was employed for the ovens; am I right?

Ans. Yes.

Int. 262. During the time when the steam heat was employed, what method of japanning the knobs was employed?

Ans. We didn't make any English finish; we made the common knobs.

Int. 263. When you baked the English-finish knobs with the ordinary japanned work in the oven at the same time, you say you placed the knobs near the bottom of the oven, substantially over the iron plate which covers the furnace, so as to get the highest heat. Where did you place the other work?

Ans. They were placed off at the sides and over the top.

Int. 264. You say, in reply to cross-interrogatory 104 that you know nothing of the composition of this English brown japan
168 except from its appearance. Judged from its appearance, what did you understand to be its principal ingredient?

Ans. My best judgment is that the principal ingredient is linseed oil.

NEW HAVEN, CONN., *May* 28, 1880.

Cross examination resumed.

Cross-int. 265. In what part of Mr. Sargent's works were the two new ovens built which he had put up in 1857?

Ans. they were built in a brick building at the west end of the brass foundry.

Cross-int. 266. Is the west end the one nearest the main building?

Ans. It is.

Cross-int. 267. One of these ovens was heated by steam, was it not?

Ans. Part of the time. I think there was a stove put in afterwards.

Cross-int. 268. When was the stove put in?

Ans. I couldn't tell now. I know they had some trouble with the heat.

Cross-int. 269. Please state as nearly as you can when this stove was put in?

Ans. I wouldn't want to swear that they put one in; they may have talked of it.

Cross-int. 270. What kind of work was done in this steam oven?

Ans. Casters, coat and hat hooks, barn-door handles, I think, and various kinds of japanned work.

Cross-int. 271. When was this oven built?

Ans. Some time before Mr. Sargent came, I think; I couldn't say when; before the panic of 1857, I think.

Cross-int. 272. Were the two ovens in that building put up at or about the same time?

Ans. I think they were.

Cross-int. 273. Was this steam oven used for the purposes you have mentioned from the time it was first built?

169 Ans. I think it was.

Cross-int. 274. For what purpose was the other oven used?

Ans. We used it for ornamenting iron, sewing machines, and other articles.

Cross-int. 275. How were the articles finished which were done in this oven?

Ans. Polished, japanned, and varnished. Some of the work had pearls set in it.

Cross-int. 276. In your last answer do you refer to the steam oven or the other?

Ans. The other.

Cross-int. 277. Please explain what you mean by setting pearls in the work?

Ans. Pearl shell polished and set into the japan, and polished off after being dried.

Cross-int. 278. Was the steam oven built over the other oven?

Ans. It was.

Cross-int. 279. How was this lower oven heated?

Ans. I think we had a stove in it.

Cross-int. 280. Was it in this oven that the antique bronze goods were baked?

Ans. I think it was.

Cross-int. 281. How long did these two ovens continue to be used in the manner you have described?

Ans. Until we removed to New Haven.

Cross-int. 282. Who had charge of making antique bronze after Mr. Brocksieper went away?

Ans. We had several. There was a man by the name of Smith took Mr. Brocksieper's place generally—I think he had charge of the bronzing.

Cross-int 283. Did he continue to have charge of it until the establishment was removed to New Haven?

Ans. Some part of it. I think it was divided up afterwards.

Cross-int. 284. Did the baking of the antique bronze continue to be done in this lower oven until the removal to New Haven?

170 Not at all times.

Cross-int. 285. Why was it not done in this oven during all this period?

Ans. I couldn't say why, but sometimes it was done over a forge.

Cross-int. 286. When and to what extent were goods finished in the way mentioned in your last answer?

Ans. Not very extensively. For small orders they made them that way very often.

Cross-int. 287. Was this done more or less during the whole period after the manufacture of antique bronze commenced and until removal to New Haven?

Ans. I think it was.

Cross-int. 288. With this exception was the antique bronze done in the lower oven or kiln, above mentioned, until the removal to New Haven?

Ans. I think it was.

Cross-int. 289. Did the old oven continue to be used after these new ones were built?

Ans. It was not.

Cross-int. 290. What became of it?

Ans. Torn down.

Cross-int. 291. Was this done soon after the building of the two new ovens above referred to?

Ans. It was.

Cross-int. 292. How soon after, as nearly as you can recollect?

Ans. I should think inside of six months.

Cross-int. 293. Where were the English-finish carriage-knobs baked after the building of the two ovens above referred to?

Ans. I think they must have been baked in the lower oven.

Cross-int. 294. Do you recollect where they were baked at that time?

Ans. I do not.

Cross-int. 295. Where were the common knobs baked after the erection of those two new ovens?

Ans. They were baked, I think, in both places; sometimes in one and sometimes in the other.

171 Cross-int. 296. Where did the old oven stand?

Ans. Back of the main building, in the yard.

Cross-int. 297. Was it in a building by itself?

Ans. It was.

Cross-int. 298. Was the japan applied in the same building?

Ans. It was.

Cross-int. 299. Where was the japan applied to the articles baked in the other two ovens?

Ans. In rooms adjoining the ovens.

Cross-int. 300. Was it upstairs or downstairs?

Ans. Both.

Cross-int. 301. Were any ovens or kilns erected on the premises occupied by Sargent & Co., or their predecessors, other than those you have mentioned, and the annealing kilns?

Ans. Not to my recollection.

Cross-int. 302. Were any changes made in any of these kilns other than those which you have mentioned?

Ans. I have no recollection of any.

Cross-int. 303. Were the two new kilns above mentioned, viz., the steam kiln and the one under it heated with a furnace, in the condition above described when Mr. Sargent removed to New Haven?

Ans. Parts of it might have been removed in the filling up down here; I can't say.

Cross-int. 304. I noticed upon the plan of Mr. Sargent's factory in New Britain an addition or extension on the back side of the building which Mr. Brockseiper called the rolling and annealing building; when was this addition made and for what purpose was it used?

Ans. It was a beltway.

Cross-int. 305. Where was the steam generated which was used in the steam oven?

Ans. In the boiler-room.

Cross-int. 306. Was English brown japan used at Sargent & Co.'s or Peck & Walter Co.'s in New Britain for any purpose other than manufacturing English-finish carriage-knobs?

172 Ans. I think it was.

Cross-int. 307. For what purposes?

Ans. I could not say for what purposes it was used; we kept it in stock.

Cross-int. 308. Had you used it for any purpose prior to making English-finish knobs?

Ans. Not to my knowledge.

Cross-int. 309. Who occupied Sargent & Co.'s works at New Britain after the removal to New Haven?

Ans. I had a brother who occupied the foundry as a blacksmith shop. Further than that I don't know if there was any of it occupied.

PURMONT BRADFORD.

Attest: JOHN B. MILLS,
Special Examiner.

Deposition of Frederick W. Brocksieper.

NEW HAVEN, *Friday, April* 30, 1880.

Direct examination by CHARLES E. MITCHELL, Esq., of counsel for defendants:

Int. 1. What is your name, age, residence, and occupation?

Ans. Frederick W. Brocksieper; age, 53; residence, Montowese, North Haven; occupation, I am a contractor, at present in the employment of Sargent & Co.

Int. 2. When did you come to the United States?

Ans. In 1847, and — here ever since.

Int. 3. State whether, prior to coming to this country, you had any knowledge of the art of ornamenting iron by heat and oil. If so, give such knowledge briefly.

Ans. I had some knowledge of it. We, at my father's factory, made imitation steel screws, amongst other screws, which we blued and browned in the following way: An iron box, four inches wide, about, eight inches long, about, about 3 inches high with an iron

173 cover hinged onto it, the bottom being perforated; a lot of screws was thrown into this pan, which had a long handle tipped with wood; the screws were poured into the pan in bulk and

a little rape-seed oil poured onto the screws, and holding it over the fire on the blacksmith forge, after the gas was gone out of the coal, there heating and shaking; as the screws commenced to heat the oil, which is naturally a thin oil, got considerably thinner by heating and easily covered the screws; but if there was an oversupply of oil, which an unskilled workman would sometimes put on, then the perforations in the bottom would remedy the evil by letting it escape; then the motion always keeps on in every direction over the slow fire; a skilled workman would know pretty nearly the point of the straw color without opening the cover by a little gas escaping through that perforated bottom; then it had to be watched very close by opening the lid of the box, and just the moment the color was suitable poured onto an iron sieve to cool.

Int. 4. What was the effect, if any, of this process upon the color of the metal itself?

Ans. The browned ones were straw color, the metal itself, and the blue was very nearly a blue, only the oil deepens the color somewhat and protects the screws from rust.

Int. 5. What degree of heat do you understand was employed to produce this effect?

Ans. At the time I did not know anything about that; now I know that we have to use from 400° to 500° Fahr. to produce those colors.

Int. 6. Where were you first employed in the U. S. and for how long?

Ans. Employed in New York by James Beebe as a modeler for one year.

Int. 7. For whom were you next employed and for how long?

Ans. I was next employed by Peck & Walter and successors from 1849 to 1859 at New Britain, Conn.

Int. 8. After you left Peck & Walter's where did you go, when did you return to the employment of Mr. Sargent, and how long did you remain?

174 Ans. I started business on my own account, in New Britain, and when the war broke out I moved my business to Montreal, Canada. After five years' absence, I think it was 1865, I came back to Sargent & Co., New Haven, and have been in his employ ever since.

Int. 9. While you were in the employment of Peck & Walter and their successors, at New Britain, between 1849 and 1859, what methods were employed to your knowledge in ornamenting iron in imitation of bronze by yourself or others? State the methods in order of time.

Ans. First of all, in about 1855 or 1854, I received my father's picture. I made a frame for the picture—the pattern I happened to find to fit my picture—and ornamented it in the following way: I had a casting made with facing, for the purpose of getting a white, clean casting, and slightly rolled to get all the loose sand off, and I rubbed the high points of the figures on the frame with fine emery-cloth or sand-paper; then I took a mixture we call "size," which consists of one part varnish—copal varnish—one part linseed oil—

raw—and one part turpentine. Of this mixture I took a fine, stiff brush and brushed a light, thin coat on the front of the frame; then I took the frame and treated it the same way as I used to do the screws over the blacksmith's fire, until the required color was produced, which was antique bronze, or bronze of old age. The back of the frame, where there was no oil, was a straw color. To make the frame look more ancient, more like old bronze ware, I brushed a little of the sizing over the high or prominent parts of the figures, and let it stay until it would not stick to the hand; then I used some copper bronze, with a chamois skin, and just covered the high points of the frame; then I left it by some warm place—hot, if I could, not too hot—until I could handle it easily without losing the bronze. This frame I have. I had my father's picture in it for ten years. It now accompanies my affidavit in the case of Hiram Tucker *vs.* Sargent Co.

The next article that I made was about the time when Mr. Bradford experimented on his carriage-knobs. I bronzed every fancy iron article we had in the foundry. Amongst others which I made was looking-glass stands, or toilet stands for looking-glasses, picture-frames, hat and coat hooks, jamb-hooks, sash-fasteners, cupboard-catches, and a variety of other things which didn't amount to anything, which were not adopted by the company.

The first experiments with those hooks I myself made after Bradford had tried with brown varnish. I experimented in the same improved blacking kiln where Bradford made his experiments, but I did not adopt the brown varnish, the same as Mr. Bradford used. I used the same material which I had used on my frame, namely, "size." Mr. Sargent took a liking to the articles and gave me an order to make a lot of different articles, but before we got fairly to work I had a kiln built under the overseeing of my boss painter. At that time I baked all my bronze work in the same new kiln where we baked our sewing machines, and we used so much more heat for bronzing my work that the Co. had a steam kiln put on the top of this new kiln to bake articles which could not stand the high heat.

The bronze goods were made substantially like the picture-frames, but in two classes, called the "dark and gold" and "antique" bronze, and both baked in this new kiln. The new kiln was made about a year after Mr. Sargent came there.

Int. 10. Describe just how a single piece, say a hat-hook, was bronzed so as to produce what you called the "antique" bronze.

Ans. After the castings were made and rolled it was drilled and countersunk, polished the high spots and the ornamentation of the hook, the most of them by hand with sand-paper or emery-cloth—the high parts rubbed—then I would put it onto a block with a spring so that one could handle it easier and take the block in the hand and brush the work lightly over with this "size," as I described before; then I set them one side on their block until they could be handled without sticking to my fingers; then I could take them off my blocks and put them in pans, near the stove or furnace in the

oven, and leave them there until the thermometer, which was at the side of the door and near the stove, showed about 420° Fahr.; then the work was taken out and set one side to cool, and all the antique bronze goods were delivered to the packing room and packed and sold.

176 Int. 11. Why was the heat carried to 420° Fahr. in baking the antique bronze goods?

Ans. It was carried up high to color or oxidize the iron to a straw color or a little beyond.

(Adjourned.)

NEW HAVEN, *May* 1, 1880.

Int. 12. You have spoken of a time when Mr. Bradford experimented on his carriage-knobs; state what time you refer to.

Ans. That is the time when we had the old kiln and tried this brown varnish. I should judge it was been 1856 and 1857.

Int. 13. Do you know the process which Mr. Bradford employed, as the result of his experiments?

Ans. I do.

Int. 14. Please describe it in detail.

Ans. The knobs were filed and sandpapered in a lathe, then varnished with this brown varnish, with a light coat, thinned down, the knobs being set into an iron plate with holes in it, and the plate put near the flue or fire of the baking kiln and left over night. The first baking gave the knobs a yellowish-brown color, like Defendants' Exhibit "A B;" then another coat of the same thickness was put on and baked in the same manner, and the resulting color was similar to Defendants' Exhibit "C D," which even then was not satisfactory in comparison with English knobs. He then put another thin, light coat on, and baked the knobs over again the same as before, the third time, and produced the color of Defendants' Exhibit "E F," with the exception of a few which were not close to the fire.

Int. 15. Was there any change in the structure of the oven or kiln about this time; and, if so, what was it, and what was its purpose?

Ans. We found that we couldn't get the heat very well, except only in a very small spot in the kiln; where we could make those English knobs it was necessary to get more direct heat, and therefore they took out the arch over the fire, which was made of brick, and replaced it with a cast-iron plate, which gave sufficient heat to make our knobs in the English style.

Int. 16. What heat was that?

177 Ans. Sufficient heat to oxidize the metal to a blue.

Int. 17. Were any portions of the knobs uncovered with the varnish when in the oven? If so, state the effect upon the uncovered portion at each successive heating.

Ans. The knobs had a stem on that was put into the iron plate, and then varnished on the plate to do it quick, and consequently the bottom of the knob, where the stem is, could not get any varnish on, and they showed in the first baking, on the part under the knob, a

straw color; on the second baking, a kind of violet color; on the third baking, blue.

Int. 18. Was it possible to produce the finish which you have described or known as English finish without this coloring of the metal itself?

Ans. It was not.

Int. 19. Describe the construction of the second kiln.

Ans. As far as I remember it was a brick square kiln about six feet square, I should judge, and about five feet high, with an iron furnace in it, which was fed from the outside and kept red-hot while baking, and there was a thermometer on the side of the door which could show the degrees up to 600° Fahr. covered with a glass, then a double iron door, which I presume all kilns have.

Int. 20. To what extent were the English-finish carriage-knobs which were produced by the process you have described manufactured and sold by Peck & Walter and their successors, and for how long?

Ans. From the time they started until I left made a considerable many for the market. I should judge they sold perhaps one gross where they sold of the common ten. They were manufactured and sold regular as the common knobs, only in not so great numbers. After I returned to Sargent, after five years' absence, they continually made the knobs in the same manner, to the best of my knowledge, down to this present time.

Int. 21. State whether, while you were at Peck & Walter's and before you went away in 1859, the coat and hat hooks and other articles made by the process which you call "antique bronze" were manufactured for the market.

178 Ans. They were; but I don't know whether they gave them the name I have given them.

Int. 22. Compare the coat and hat hooks and other articles made by you with those previously made by Bradford.

Ans. Mr. Bradford's, which he made with his brown English varnish, were darker, the prominent points not so bright, being only rolled, and didn't have that green cast to them which I preferred.

Int. 23. Was there any difference whatever in the action of the heat upon the metal?

Ans. There was not.

Int. 24. How did the degree of heat employed to bake the coat and hat hooks compare with that to bake the knobs?

Ans. One baking was sufficient for all those goods. The heat was the same as the first baking of the knobs.

Int. 25. What was the object in sandpapering or otherwise polishing the corners and ridges of the metal before applying the "size" and heat?

Ans. To beautify the appearance of the ornamented article and have it look as if it was old and worn bronze metal.

Int. 26. Why did you call it "antique?"

Ans. Because I imitated old statuary, which antique I believe means—old time, aged.

Int. 27. To what extent were articles finished by this process,

which you call "antique" bronze, made for the market before you left in 1859?

Ans. I made a good many gross of them. I couldn't tell how many. I made them from time to time on regular orders, same as I would make any other orders—twelve to twenty-four gross at a time.

Int. 28. State whether the dark and gold finish was also employed on articles made for the market.

Ans. Just the same as the "antique." We made some more, I think.

Cross-examination by CHAS. M. REED, Esq., of counsel for complainant:

Cross-int. 29. What kind of work did you do while in the employment of James Beebe, in New York, upon your arrival in this country?

179 Ans. Principally modeling, ornamental work, drawing and pattern-making.

Cross-int. 30. What was the business of James Beebe & Co.?

Ans. Making a patent range, called the "Beebe Range," building fountains and statuary.

Cross-int. 31. When you commenced working for Peck & Walter, in 1849, what kind of work did you do?

Ans. I made fancy patterns, silver plated, ornamented the iron goods, and manufactured all the fancy brass goods.

Cross-int. 32. What kind of iron goods did you ornament at that time?

Ans. Coat and hat hooks, jamb-hooks, and clock shelves.

Cross-int. 33. In what manner were these articles ornamented?

Ans. Different ways. One class of those goods, all through, was painted green, and when dry the tips were "sized," and when the proper dryness — was then touched with gold bronze—the high points. Another class of goods we made of the same articles, sized them all over, brushed them with gold bronze after the sizing was sufficiently dry, covered them with gold bronze powder all over. The third class of goods we sized the same as before, covered them with green bronze powder, sized the higher points, when sufficiently dry covered them with copper bronze powder. The fourth class of goods we made we japanned, the high spots sized, when sufficiently dry covered with gold bronze powder. I believe that is all the different kinds of iron goods we ornamented.

Cross-int. 34. Were the goods in any of the three first classes you have mentioned heated in an oven or kiln during the process of ornamentation?

Ans. Not in the beginning.

Cross-int. 35. Were they so heated at any time, and, if so, when?

Ans. Some years after we dried them in a kind of a box over steam to produce the dryness quicker—only object.

Cross-int. 36. How hot was this steam box used for this purpose?

Ans. Couldn't tell you what the heat was. We had no way of measuring it at that time.

180 Cross-int. 37. When was that steam box built, and what was its construction?

Ans. Out of iron plate, the box being about two feet and a half one way and about the same width, and I should judge the height was about two feet—simply set over some steam pipes.

Cross-int. 38. Were the steam pipes inside of the box?

Ans. No; the box stood on top of steam pipes.

Cross-int. 39. How many of these steam pipes were there, and what was their size?

Ans. I believe there was about eight coils of inch pipe.

Cross-int. 40. Were any methods of ornamenting iron goods other than those you have described practiced at Peck & Walter Co.'s prior to 1856?

Ans. Japaning, and in 1854, I believe it was, I made that picture-frame at Peck & Walter M'f'g Co.'s place for my own private use. I may have made several experiments, by experimenting all the time, but I cannot remember what the articles were.

Cross-int. 41. How do you fix the date when this picture-frame was made?

Ans. I got my father's picture, sent to me from Europe, at that time. I would not know it otherwise.

Cross-int. 42. How do you fix the date of receiving the picture?

Ans. I was anxiously waiting, and hadn't seen my father's face for so long that I will keep it everlasting in my memory, I believe.

Cross-int. 43. Does this enable you to say in what year the picture was received?

Ans. Yes, sir; easy enough.

Cross-int. 44. And this is the only circumstance by which you fix the date, is it?

Ans. Positive[ly] the only, but very nearly I could fix the date within a year or two by Sargent's coming to New Britain and taking charge of the Peck & Walter M'f'g Co. I would know it was a year or two previous to his coming.

Cross-int. 45. What kind of a picture was this?

Ans. A photograph.

181 Cross-int. 46. On paper?

Ans. On glass.

Cross-int. 47. Where did you find the pattern for this frame which you used on this picture?

Ans. I believe I got it from Mr. Gebhard. I meant by "finding" that I did not have to model it myself.

Cross-int. 48. Who was Mr. Gebhard, and what was his business?

Anr. Mr. Gebhard was a painter—artist.

Cross-int. 49. Where did he reside?

Ans. He resided in Forrestville.

Cross-int. 50. Was the pattern which you procured of iron; if not, of what material was it?

Ans. I believe it was brass or bronze. I don't believe it was iron.

Cross-int. 51. Did you purchase this frame?

Ans. I did not.

Cross-int. 52. Did you borrow it?

Ans. Yes, sir.

Cross-int. 53. What was the color and appearance of this frame?

Ans. Like old brass.

Cross-int. 54. Where did you have the frame cast which you used on the picture?

Ans. Peck & Walter Co.'s foundry.

Cross-int. 55. Did you have more than one frame cast from this pattern?

Ans. I believe I had half a dozen cast.

Cross-int. 56. I understand that at first you finished only one.

Ans. I believe I didn't finish but one.

Cross-int. 57. Did you experiment on this at all before producing the finish which you retained upon it?

Ans. I did not; it was an old thing. I had seen the same thing done when I was a boy.

Cross-int. 58. Where did you procure the material which you used in bronzing this frame?

Ans. Same materials which I used constantly for my regular work.

182 Cross-int. 59. I understand, then, you used the same mixture of varnish, oil, and turpentine which was used as a size for fixing bronze and other powders without making any change in it?

Ans. Yes, sir; I used the same.

Cross-int. 60. Did you not say, in your affidavit recently given in the case of Hiram Tucker *vs.* Sargent & Co., to which you have already referred, that the material you used for this purpose on this frame was linseed oil?

Ans. I don't believe I have. If ever have I may be wrong, because the main part is linseed oil.

Cross-int. 61. Let me call your attention to a copy of the affidavit now shown you. After examining it please say whether the statement therein made as to the material used upon this picture-frame is correct.

Ans. The statement in the affidavit is not correct. I used a mixture.

Cross-int. 62. Prior to the application of this mixture to the frame are you certain that nothing had been done to it after casting other than the cleansing from sand and the polishing of the raised parts which you have mentioned?

Ans. Nothing to my knowledge.

Cross-int. 63. Was it pickled or treated with acids in any way?

Ans. I can't say. It might possibly have been pickled to get the sand out—only to clean it.

Cross-int. 64. By whom was this cleaning and polishing done?

Ans. By myself.

Cross-int. 65. You received it, then, just as it came from the mold, did you?

Ans. If it was pickled it was pickled in the foundry. I wouldn't know now.

Cross-int. 66. You have stated that you rolled it to remove the sand. How did you do this?

Ans. That was also done in the foundry. They put the work in a wooden or iron barrel, put a lot of small castings mixed with the goods—those small castings are called scratchers—and then
183 rolled until all the sand, or most all the sand, is removed from the casting, and then delivered for ornamentation and finish.

Cross-int. 67. How did you apply the size to the frame?

Ans. With a fine stiff brush; brushing it on.

Cross-int. 68. Then what did you do to it?

Ans. I held it over the coal fire, after the gas was burned off, until the back of the frame, which was not oiled or sized, showed the required color, which was a dark yellow.

Cross-int. 69. What kind of coal was used in this fire?

Ans. Common soft coal.

Cross-int. 70. Was it a common blacksmith's forge?

Ans. It was.

Cross-int. 71. How near the fire did you hold the frame?

Ans. Close to the burning coal.

Cross-int. 72. How did you hold it?

Ans. With iron blacksmith tongs.

Cross-int. 73. How long did this heating take?

Ans. I think from five to ten minutes.

Cross-int. 74. During the process did you examine the face of the frame?

Ans. I had the face of the frame at my eyesight constantly; I examined the back during that time though, to be sure to get the right heat.

Cross-int. 75. Which side of the frame was next to the fire?

Ans. Of course the back.

Cross-int. 76. Then the color and appearance of the face of the frame did not indicate sufficiently to your mind whether the process had been completed?

Ans. No; because it darkens the color—the oil does.

Cross-int. 77. It was this dark color on the face of the frame which you desired to procure, was it not?

Ans. In part, but not too much; otherwise I might have japanned it.

Cross-int. 78. Did you stop when you had reached this yellow color on the back of the frame?

184 Ans. I did, or I intended to do so.

Cross-int. 79. At this point was the color on the face of the frame satisfactory?

Ans. Very nearly so.

Cross-int. 80. In what respect, if any, was it unsatisfactory?

Ans. The high points was a little too dark, so I had to touch it up with bronze powder to give brightness to the appearance of the frame.

Cross-int. 81. This darkness was due to the fact that the points had been heated too much, was it not?

Ans. A few spots on the frame were a little overheated—that is, to my notion.

Cross-int. 82. Then with this evidence on the face of the frames, that the work had been heated enough and even too much, why was it necessary for you to examine the back of the frame?

Ans. Because the back of the frames, having no oil and large plane surfaces, will show the color to better advantage than if oiled, and only a small surface.

Cross-int. 83. Was the color on the back of the frame of any consequence or an addition to the value of the finished work?

Ans. Not at all.

Cross-int. 84. After removing the frame from the fire, what was next done to it?

Ans. I laid it down on an anvil to cool.

Cross-int. 85. Then what did you do to it?

Ans. Then I took the frame, sized the high spots, and, when sufficiently dry, copper-bronzed them.

Cross-int. 86. Rubbing on the copper bronze?

Ans. Yes, sir.

Cross-int. 87. How large part of the surface of the frame was treated with this copper powder?

Ans. Very small points.

Cross-int. 88. What further treatment did the frame receive?

Ans. Let it dry and brush it clean of the surplusage of bronze powder; that completes it.

Cross-int. 89. What then became of it?

185 Ans. I took it home, put my father's picture in it, and hung it in my front or parlor room.

Cross-int. 90. How long did it remain there?

Ans. As long as I remained in the house; I couldn't say how long, but I kept it in my front room, wherever I lived, for ten years.

Cross-int. 91. What was then done with it?

Ans. After the picture broke it came out of my sight—that is, it was laid by my wife in the garret, and it remained there until I hunted up some of the bronzed work which I had made at that time. One of my children found it.

Cross-int. 92. When was it found?

Ans. I believe three or four months ago.

Cross-int. 93. Has this frame received any treatment other than what you have described at any time?

Ans. It has not.

Cross-int. 94. When did you finish the next iron picture-frame?

Ans. I am not positive; I might have made iron picture-frames before I made looking-glass stands, which was between 1856 and 1857; then I made a great variety of those antique bronzed goods.

Cross-int. 95. Did you show this frame to any one, or explain its process of manufacture?

Ans. The men in the shop were there and could have seen it if they had wanted to, and may have seen it; I did not keep it a secret; I didn't consider it worth keeping secret.

Cross-int. 96. You didn't consider it any improvement, then, on other kinds of finish which were in use at Peck & Walter's, or other manufactories, so far as the same had come under your observation?

Ans. I did consider it an improvement, but not new; what I had seen when I was a little boy.

Cross-int. 97. In the last part of your answer you refer to the process of coloring screws, I presume?

Ans. Not particularly; good many goods were made in that way.

Cross-int. 98. What goods?

Ans. Locksmiths make their filed and polished hinges—seen them make them; after they are all finished they oil them with
186 common rape-seed oil and heat them over the forge, so as to have a nice yellow color and stop them from oxidation.

Cross-int. 99. Was the finish on these hinges that you refer to as made in Germany the same in apperance as that upon this picture-frame?

Ans. No; they are light yellow, because they are all polished.

Cross-int. 100. You say that, although you did not consider this process new, you did consider it as an improvement on what was practised at the Peck & Walter Co.'s and other manufactories in this country; did you call it to the attention of your employers or of any other person with a view of having it introduced here?

Ans. I did consider it an improvement, and urged Mr. Sargent to have them manufactured for this market.

Cross-int. 101. How soon after the frame was made did you do this?

Ans. A year or two; I couldn't exactiy say the date; after Sargent had been there some time.

Cross-int. 102. When was the next article finished by you in this way, and what was it?

Ans. I believe the next that I made and tried to urge on the company was looking-glass frames, which the company did not accept.

Cross-int. 103. Was this before or after Mr. Bradford experimented with his carriage-knobs?

Ans. I believe it was a little after or at the same time.

Cross-int. 104. Were these frames of the pattern shown in Exhibits "I" and "K?"

Ans. That was some of them. I had several of them.

Cross-int. 105. Why did not the company accept them?

Ans. Mr. Sargent thought it didn't quite come in with the house-building hardware—out of his line.

Cross-int. 106. Did the company make picture-frames or looking-glass frames of any kind or of any material prior to your leaving them in 1859?

Ans. They did not. I made them on my own expense; had them cast them for me.

187 Cross-int. 107. Did you commence making them on your own account before or after Mr. Bradford's experiments with the brown varnish?

Ans. I made a good many of them before, painted, bronzed in different styles, but no antique bronze, or dark and gold.

Cross-int. 108. Were these all made of iron?

Ans. I made some out of brass, silver plated, gold plated, and chemically bronzed.

Cross-int. 109. Do you mean that those which were gold and silver plated were made of brass?

Ans. They were all brass.

Cross-int. 110. How were the frames finished which you offered to the company?

Ans. Both antique bronze and brown and gold, or dark and gold.

Cross-int. 111. Had you proposed to the company to make frames of brass finished in the ways you have mentioned?

Ans. No, sir.

Cross-int. 112. How were these frames which were offered to the company finished?

Ans. Same as those exhibits. (Referring to Defendants' Exhibits "I" and "K.")

Cross-int. 113. What was the process of finishing them?

Ans. They were cleaned—castings cleaned—frames fitted, screws put in, emery-papered or sandpapered, oiled with size, baked until they had the desired color. The glass was put in, the parts screwed together so that the frame that the glass was in could swing, to make it suitable for a toilet glass.

Cross-int. 114. How did you heat these frames?

Ans. In the kiln where we baked our sewing machines, using a heat between 400° and 500° Fahr., and watched them besides.

Cross-int. 115. Where did you get the pattern for these frames?

Ans. Some I made myself; some I got one place, some another, wherever I could get them. I am not sure whether Defendants' Exhibits "I" and "K" are my make. I know I chased the pattern

188 Cross-int. 116. How many patterns of looking-glass frames did you manufacture prior to 1859?

Ans. I guess a half dozen different kinds, more or less.

Cross-int. 117. What did you do with the frames you made from these patterns?

Ans. I sold them to the workmen, friends, any one who wanted them.

Cross-int. 118. To whom did you sell them? State as fully as possible.

Ans. To the shop hands. Most everybody had them. I cannot remember their names, but I sold some to Mr. Trout, New Britain—A. F. Trout I think was his name; Charles Revoir, New Britain, the brother of Charles Revoir; Mr. Bradford; I don't know but Mr Sargent had some of them. I don't know how many more; I can't give all the names.

Cross-int. 119. About how many of these frames, finished in antique bronze or brown and gold, did you sell before leaving Peck & Walter M'fg Co.?

Ans. I believe in the neighborhood of a hundred.

Cross-int. 120. Do you know where any of them now are?

Ans. I do not. I spent a whole day, from morning to night, in New Britain, to find one. Families have been all broken up, and the articles not to be found.

Cross-int. 121. Did you make any effort to give any more ex-extended sale to these articles by bringing them to the attention of any dealer or manufacturer?

Ans. I did not, except to Mr. Sargent.

Cross-int. 122. Did you manufacture any of these frames after leaving the Peck & Walter Co. in 1859?

Ans. I did not. I went into another branch of business.

Cross-int. 123. When you commenced working for Peck & Walter Co. were you employed by the day; if not, how were you employed?

Ans. I believe I started right off as contractor. I may have worked a week or so by the day, but I have no recollection of it.

Cross-int. 124. When you commenced as contractor what was your arrangement with the company? Explain fully.

189 Ans. No particular arrangement. I took a certain kind of goods, made a price for how much I would make them apiece, a dozen, a gross. I hired my help and paid them, and the company furnished material.

Cross-int. 125. Was any different arrangement made while you remained with the company?

Ans. No, sir; not prior to 1859, with the exception of a short time when I supervised the manufacture of sewing machines.

Cross-int. 126. By whom was the manufacture of sewing machines carried on which you supervised?

Ans. Manufactured in my name for the company.

Cross-int. 127. When, and for how long, did you continue this sewing machine business?

Ans. For a year about. I believe it was between 1857 and 1858; it may be a year, more or less; we had an injunction put on us.

Cross-int. 128. While you were conducting this sewing machine business did you also carry on the business of japanning and finishing ironware for the Peck & Walter Co. as you had previously done?

Ans. I did, and the plating.

Cross-int. 129. You have mentioned an oven or kiln where the sewing machines were japanned; was this the new oven which Mr. Sargent had put up about 1857?

Ans. Yes, sir.

Cross-int. 130. Was any other new oven built while you were there?

Ans. Yes, sir; a steam oven on the top of this other one.

Cross-int. 131. Please describe this steam oven, and state for what purpose it was used.

Ans. My recollection is not very good on that, but to the best of my recollection there were two sets of coils of steam pipe clear around the sides, one on the bottom and one on the top, and I believe that where the oven door was we had to step over the lower coils, if my impression is right; otherwise it was fixed with bars and hooks the

same as any other kiln. When I had the supervision it was
190 used for the last varnish baking, after machines were painted and gilt completely—not having heat enough to discolor the varnish.

Cross-int. 132. Did you ever attempt to make antique bronze and dark and gold bronze or to do japanned work in this steam oven?

Ans. I did not.

Cross-int. 133. Why not?

Ans. Because it didn't have heat enough.

Cross-int. 134. I understand you that the first of the antique bronze which you brought to the attention of Mr. Sargent was the looking-glass frames. How soon after that did you finish the numerous articles of builders' hardware which you say you finished in this antique bronze?

Ans. At or about the same time.

Cross-int. 135. And when was this commenced?

Ans. Between 1856 and 1857.

Cross-int. 136. Did you make any experiments at this time with the English brown varnish which Mr. Bradford had used on the carriage-knobs?

Ans. I did not. I considered my way the best, except for blacking.

Cross-int. 137. Wouldn't the brown varnish answer the purpose as well—produce the same finish as the size which was used?

Ans. I guess it would, only it was too expensive. It would do the same work, only you had to watch it closer and it cost more.

Cross-int. 138. You made no experiments at that time to ascertain?

Ans. I did not. I watched all the experiments Mr. Bradford made.

Cross-int. 139. Do you refer to his experiments on carriage-knobs?

Ans. Yes, sir, and hat and coat hooks, and a few other things; I guess cupboard-catches.

Cross-int. 140. How many experiments of Mr. Bradford's on these latter articles did you ever see? I mean before you commenced the manufacture of hardware in the antique bronze.

Ans. In the period of about a week or two I may have seen a half a dozen experiments; not being particularly in my department, I took all the opportunity I could get to learn something.

Cross-int. 141. Why did the brown varnish require more watching?

191 Ans. Because it turned quicker dark than the "size" that I used; the same heat that would turn my mixture straw color would turn the English brown varnish brownish, which I wanted to prevent on my raised points.

Cross int. 142. What oven did you use for baking this hardware?

Ans. The first I baked in the old kiln that Bradford changed, but the regular goods of this description were baked in the same kiln where we japanned our sewing machines.

Cross-int. 143. When you used the old kiln how long were the articles left in the kiln to bake?

Ans. Left them over night same as the rest of them.

Cross-int. 144. Were the japanned goods baking in the oven at the same time?

Ans. Yes, sir; only not so close to the fire.

Cross-int. 145. After the new kiln was built what length of time was occupied in baking antique bronze?

Ans. It depended on the heat we had in the kiln.

Cross-int. 146. What was the usual time? State as nearly as you can.

Ans. At 400° Fahr. it would take sometimes four or five hours; at 500° Fahr. perhaps it wouldn't take 20 minutes.

Cross-int. 147. Did you have a thermometer on this kiln?

Ans. Yes, sir.

Cross-int. 148. Please specify the different articles of hardware as fully as possible which you finished in the antique bronze and dark and gold bronze.

Ans. Of hat and coat hooks, two kinds; one kind of jamb-hook, one kind of cupboard-catch, and the Sargent & Brocksieper sash-fastener; these were all made for the company, to my best knowledge; for my own account I made two kinds of looking-glass stands and one kind of picture-frame; I don't think of any other, although I might have made a few other articles.

Cross-int. 149. Do you remember finishing match boxes or any similar articles for the company in either of these styles?

192 Ans. I do not, though I might have made some and not remember it.

Cross-int. 150. Were the sash-fasteners finished exactly according to the process you have described?

Ans. They were—all I made.

Cross-int. 151. Were any finished by others for the company while you were in their employ?

Ans. There was not, to my knowledge.

Cross-int. 152. Were these sash-fasteners smooth or polished all over?

Ans. Two grades—one ground and polished, the other one not, only rolled.

Cross-int. 153. The surfaces of these sash-fasteners were smooth, and when finished did not present the same contrast of colors as is shown on the coat and hat hooks, did they?

Ans. The sash-fasteners were not ornamented, and therefore would show pretty near one color. By ornamented I mean with raised figures on them.

Cross-int. 154. When did you first begin bronzing these sash-fasteners?

Ans. I believe it was in my last year of my staying in the shop there. Between the years 1858 and 1859, if I am not mistaken.

Cross-int. 155. Had any sash-fasteners of any kind been finished in this way before this date?

Ans. I don't recollect; there might be, though. I don't remember.

Cross-int. 156. Will you please describe the whole process of finishing one of these sash-fasteners?

Ans. After they were cast and rolled the gates were ground off; the screw-holes that were not cast in were drilled and countersunk; the lever drilled, the knob drilled; then they were bronzed, same as I have described in those articles, like antique, and the articles come back to the hand to be put up. I put in the spring and the knob of the catch or lock, and put the rivet in to hold the spring, and the steel spring is put in the back of the lever, and the knob that holds the whole thing together is put in and riveted, and the not-
193 ground one is complete. The polished one is made the same way, only before bronzing the flat surfaces of the top and back are ground and polished.

Cross-int. 157. Were the patterns of coat and hat hooks and jamb-hooks represented by the exhibits here in evidence made only by the Peck & Walter M'f'g Co. or its successors?

Ans. I believe there is not a manufacturer of hardware that hasn't stolen them and made them.

Cross-int. 158. When were articles of these particular patterns first made and sold by the Peck & Walter Co.?

Ans. I believe they were made between 1849 and 1850 and sold. The jamb-hook was made a year or so later.

Cross-int. 159. Please give the names of any workmen who were employed by you while you were working for the Peck & Walter Co. in New Britain.

Ans. There was Chas. Snipple—I believe he is dead; a man by the name of Colon, Von Stout, Christ. Fagan, Bryan Fagan, Joseph Ruff, John Ruff, Christian Schneider. That is as well as I can recall now.

Cross-int. 160. Do you know where any of these parties are now living?

Ans. There are some who live in New Haven. John and Joseph Ruff are in New Haven.

Cross-int. 161. Are any of these parties still employed by Sargent & Co.?

Ans. I believe they are.

Cross-int. 162. Which ones are so employed?

Ans. I believe the two Ruffs and Fagan. I believe the other one is dead.

Cross-int. 163. Will you please refresh your recollection on this subject, and bring in before the examiner on Monday morning a list of the names of such other persons, as many as you can recollect or obtain, who worked for you at the Peck & Walter Co., stating at the same time where they now live or may be found, in all cases when you are able to do so?

Ans. I will do so with pleasure.

194 Cross-int. 164. In japanning the carriage-knobs with brown English varnish, as practiced while you were at the Peck & Walter's Co.'s, what proportion of spirits of turpentine did you use to dilute the varnish?

Ans. I believe they diluted it as much as half, a great portion tur-

pentine. The test they had when it was thin enough was to dip the brush into the varnish and hold it up, and let the varnish drop off from the brush; if it fell in round pearls and not in long, oval drops, then was the point they stopped adding turpentine.

Cross-int. 165. Did you prepare these Exhibits "G," "H," "H^2," "J," "J^2," and "L," or were they prepared under your supervision?

Ans. The bronzing I did personally; the drilling and grinding, etc., is done by the workmen.

Cross-int. 166. What material did you use in bronzing these exhibits?

Ans. Same material I did use prior to 1859, "size."

Cross-int. 167. Please state the proportion of the ingredients of the size used on these exhibits.

Ans. As near as possible, it is one part copal varnish, one part linseed oil, one part turpentine, and sometimes they use the same quantity of turpentine as the two parts together when they want to work quick.

Cross-int. 168. My question referred to the size used on these exhibits.

Ans. They are the proper three parts mentioned in the last answer.

Cross-int. 169. Did you mix the "size" specially for the preparation of these exhibits?

Ans. I did not; used the regular mixture.

Cross-int. 170. How long were these exhibits in the oven and what was the heat?

Ans. The heat was 440° Fahr., and they were in the oven I should judge about half an hour.

Cross-int. 171. Were there any other similar articles bronzed at the same time?

195 Ans. There were the knobs. They were in the kiln at the same time, but not taken out at the same time, and not at the same heat—the heat being raised after the hooks were taken out.

Cross-int. 172. These hooks were finished for the express purpose of being used as exhibits in this case, were they not?

Ans. Yes, sir.

Cross-int. 173. Have you finished any other hooks for this purpose which have not been produced?

Ans. I have.

Cross-int. 174. How many?

Ans. I believe another set, for the case of Tucker *vs.* Sargent & Co.

Cross-int. 175. Were they done at the same time as these?

Ans. No, sir.

Cross-int. 176. Were these two lots of hooks the only ones which you bronzed while engaged in preparing exhibits for the cases?

Ans. In the first lot, in connection with the case of Tucker *vs.* Sargent, I made two or three dozen, and delivered them to Mr. Sargent. This time I made only this set.

Cross-int. 177. In the case of Tucker *vs.* Sargent & Co. one or more sash-fasteners were also filed as exhibits. Have you prepared any in connection with this case?

Ans. I did prepare some.

Cross-int. 178. Will you produce them?

Ans. I delivered them to counsel for defendant.

Cross-int. 179. How were these sash-fasteners finished?

Ans. Just the same as I described in answer to cross-int. 156.

Cross-int. 180. How, if at all, did the process used in finishing these sash-fasteners differ from that used in finishing the coat and hat hooks filed here as exhibits?

Ans. Don't differ in any way, with the exception that some of the coat and hat hooks have bronze powder put in afterward. They were like Defendant's Exhibits "J," "J²," and "L."

Cross-int. 181. Was the mixture used in coating them the same?

Ans. Just the same.

196 Cross-int. 182. How long were they in the ovens, and what heat was used?

Ans. What I prepared were in the oven about five minutes, while the heat ran from 400° over 500° Fahr.

Cross-int. 183. Were they intended to represent the finish on the sash-fasteners as formerly made by you in New Britain?

Ans. They were, so as to get as near as possible the same thing—used the same material.

Crsss-int. 184. Will you please bring in on Monday morning a bottle of the English brown varnish, undiluted, and a bottle of the "size" used by you in preparing these exhibits, to be marked as exhibits in this case?

Ans. With pleasure.

(Adjourned.)

NEW HAVEN, *May* 4, 1880.

Cross-int. 185. Are you familiar with the sash-fasteners made by Judd & Co., in New Britain, while you were there?

Ans. I was not. They kept the process secret. I never could find out.

Cross-int. 186. I don't ask for the process, but only for the appearance of the goods themselves.

Ans. The appearance was like those that I made. I tried to imitate them as near as I could.

Cross-int. 187. Have you produced the varnish, size, and oil called for?

Ans. I have.

(The three bottles are put in evidence, and are marked respectively Defendants' Exhibits "M," "N," "O," I. Bell, N. P.)

Direct examination resumed:

Int. 188. In cross-int. 60 you were referred to the fact that in your affidavit in the case of Tucker *vs.* Sargent the Exhibit "Brocksieper Picture-frame" is referred to as having a "thin coating of linseed oil." Further on in your said affidavit you use the following language: "While in the employ of the Peck & Walter M'f'g Co., in

New Britain, previous to 1859, I bronzed looking-glass frames
197 made of cast-iron in substantially the same way as described in bronzing the picture-frame Exhibit 'Brocksieper Picture-frame.' I had iron castings thoroughly cleaned and the prominent parts ground and polished. I then covered the face of the frames and the stands with a mixture of copal varnish, linseed oil, and turpentine, put on thin with a brush." Say whether or not you intended to be understood at the time the affidavit was abnegated that the ingredients of the coating applied to the Exhibit "Brocksieper Picture-frame" were the same as the ingredients of the coating applied to the looking-glass frames.

Ans. I intended to say the same.

(Adjourned.)

NEW HAVEN, CONN., *May* 28, 1880—10 o'clock a. m.

Cross-examination resumed:

Cross-int. 189. You have testified in your previous examination to japanning sewing machines at Mr. Sargent's in 1857 or 1858; what parts of the machine were so japanned?

Ans. Japanned the bottom of the machine and the arm; I believe that is all; may possibly the wheel; I think it was japanned.

Cross-int. 190. By the bottom do you mean the broad plate to which the machinery is attached?

Ans. Yes, sir.

Cross-int. 191. What kind of japan did you use?

Ans. There I am at a loss; we bought our japan for our machines; I believe they called it copal japan; I couldn't be sure; I never had anything to do with it personally.

Cross-int. 192. What was the color, the appearance of this japan, before being applied to the machines?

Ans. As far as I can recollect it was brownish.

Cross-int. 193. How did it compare in appearance with the English brown japan?

Ans. I think it was a little heavier; otherwise the color was similar.

Cross-int. 194. Was it used pure or diluted?

198 Ans. I believe it was used pure, so far as I can remember.

Cross-int. 195. Did you use more than one coat of this japan on machines?

Ans. On the best machines I guess we used as much as six or seven coats.

Cross-int. 196. How was it applied?

Ans. With a brush.

Cross-int. 197. Was it baked after each coating?

Ans. Yes, sir.

Cross-int. 198. What degree of heat was used in baking these machines?

Ans. The first coat I believe was between 500° and 600° Fahr., and the next coats at a less, I should not think over 300° or 400° Fahr., but I am not positive about that.

Cross-int. 199. How long did each heating occupy?

Ans. I am not positive about that; it would depend how near the kiln they were put; but the first took the least time by being put close to the kiln—to the fire.

Cross-int. 200. What was the color of the article after the first baking?

Ans. Similar to any common japanning—black.

Cross-int. 201. What was the object in repeating the coating so many times?

Ans. To get an even smooth polish, because after each coating they were rubbed off with pumice-stone and rotten-stone until the surface was all even.

Cross-int. 202. When did you cease the manufacture of these sewing machines?

Ans. I believe it was between 1857 and 1858; that is as near as I can remember.

Cross-int. 203. Where did you procure the japan used on these sewing machines?

Ans. I believe they bought it in New York. I did not have anything to do with that.

Cross-int 204. Was this japan used for any other purpose at the works of Peck & Walter or Mr. Sargent?

199 Ans. Not that I know of.

Cross-int. 205. Did you ever try English brown japan for this purpose?

Ans. I didn't.

Cross-int. 206. Wasn't it suited for that kind of work? If not, why?

Ans. I don't think it would be suited for that purpose, because it was not heavy enough.

Cross-int. 207. In preparing your first picture-frame you have testified that you used "size" composed of copal varnish, raw linseed oil, and spirits of turpentine in equal parts. Did you prepare this "size" yourself?

[Ans.] ——.

Cross-int. 208. How long had it been mixed before you used it for this purpose?

Ans. Mixed it every day and thinned it every day. It got thick by standing sometimes.

Cross-int. 209. How often did you make an entirely fresh lot of it?

Ans. Every day.

Cross-int. 210. In making a lot did you use what was left from the previous day, adding fresh ingredients?

Ans. I did, provided it was not dirty.

Cross-int. 211. Was it usually sufficiently clean to use?

Ans. No; most always full of hair, bronze, and stuff—threw it away.

Cross-int. 212. Why was oil used in this size?

Ans. So as to have a strong body and a thin coat, so that we

could put on a thin coat and have a stronger body and keep longer sticky.

Cross-int. 213. In using the powdered bronze with this size how long was the size allowed to dry before the powder was applied?

Ans. That depended how long I kept them on my steam-box. If they were not put on the steam-box sometimes it took an hour.

Cross-int. 214. And how long did it take the articles to dry after the powder had been applied when the steam-box was not used?

Ans. In about twenty-four hours it would be fit to pack.

Cross-int. 215. Was the common raw oil used in making the size—the common raw oil of commerce such as painters use?

200 Ans. I believe it was.

Cross-int. 216. Where did you procure this oil?

Ans. I couldn't tell. The company furnished it.

Cross-int. 217. In describing the process of finishing coat and hat hooks in antique bronze you have testified that after putting them on blocks and coating them with the size you allowed them to stand until they could be handled without sticking to your fingers. How long did it take to dry them to this degree?

Ans. Couple of hours. I don't know exactly the time.

Cross-int. 218. Did you attend personally to the baking of these articles of antique bronze?

Ans. I did as long as I was in the employment of the company.

Cross-int. 219. In what part of the works was your room?

Ans. I had all over the shop.

Cross-int. 220. What departments did you have charge of?

Ans. Plating—silver and gold plating, chemical bronzing, filing, turning, burnishing, lacquering, and ornamenting in general. I should include dipping.

Cross-int. 221. What do you mean by dipping?

Ans. Merging the brass goods into a mixture of acids to give the metal its natural bright color.

Cross-int. 222. In what building or buildings were these various operations performed?

Ans. Well, they were performed in the main building, in an L connected with the main building, and in a connection on the brass foundry.

Cross-int. 223. Was the manufacture of English-finish carriage-knobs under your charge at any time?

Ans. No, sir.

Cross-int. 224. It will help us to understand your references to these buildings if you will make a sketch of the ground plan of the works in New Britain, as they were in 1856, showing the relative location of the different buildings. Will you be so kind as to make such a sketch to be used as an exhibit in the case?

Ans. I will. (He prepares a draft, and it is marked Com-
201 plainant's Exhibit P.)

(A tracing of correct ground plan furnished by Mr. Sargent is substituted for the witness' sketch, and it is marked Exhibit "Sargent Ground Plan," I. Bell, N. P.)

Cross-int. 225. Of what material were these buildings built?

Ans. Most of brick; some parts of it was wood.

Cross-int. 226. What parts were of wood?

Ans. Part of the ornamenting room was of wood. I believe that is all except the sheds.

Cross-int. 227. How many stories high was the main building?

Ans. Called three stories—it wasn't in reality—it was a three-story-and-a-half building. There were four floors.

Cross-int. 228. Give how each floor was occupied, beginning at the bottom?

Ans. The basement was occupied by iron works; the first floor, office and packing room; the next floor, filing and burnishing; the next floor, turning and press work.

Cross-int. 229. Had the building which you have marked as the "rolling room and annealing room" more than one story?

Ans. It had, where the new plating room was.

Cross-int. 230. Was the plating room in the first story or second?

Ans. Second story.

Cross-int. 231. For what purpose was the room under it used?

Ans. Rolling and annealing.

Cross-int. 232. Were the annealing kilns in the building?

A. Yes, sir.

Cross-int. 233. In what part of the building?

Ans. Near the engine-room.

Cross-int. 234. Where was the blacksmith's forge?

Ans. In the basement of the main building, where the machine shop was—in the end of the building towards the brass foundry.

Cross-int. 235. Had the building marked "blacking building" more than one story?

Ans. Not that I can remember.

Cross-int. 236. Did this building stand apart from the other buildings?

202 Ans. It did, as far as I can recollect.

Cross-int. 237. Was the first baking kiln which you referred to in your deposition—I mean the one which Mr. Bradford altered to make English-finish knobs—in this building?

Ans. Yes, sir.

Cross-int. 238. Was there any other kiln in this building?

Ans. Not that I know of.

Cross-int. 239. Had the brass foundry more than one story?

Ans. It did not have.

Cross-int. 240. Had the ends next to the street, which you have marked the paint-room and kilns, more than one story?

Ans. The kiln had two stories.

Cross-int. 241. Where were the kilns which Mr. Sargent put up in 1857?

Ans. In the building marked "kiln."

Cross-int. 242. How many of these kilns were there?

Ans. Two—fire and steam kiln.

Cross-int. 243. Do you mean two fire and two steam kilns or one each?

Ans. No; one each.

Cross-int. 244. Were they on the first floor or second?

Ans. Fire kiln on the first and steam kiln on the second.

Cross-int. 245. On which side of the building were the kilns?

Ans. The passage around the kiln was toward the factory and the kiln was built towards the street; I will mark on the plan.

Cross-int. 246. On which side of the kiln was the door?

Ans. Towards the wooden building, as near as I can recollect.

Cross int. 247. Did the door open into the wooden building?

Ans. Yes, sir.

Cross-int. 248. Where was the furnace by which this kiln was heated?

Ans. Towards the brass foundry.

Cross-int. 249. Was it under the kiln?

Ans. No; it was in the kiln.

Cross-int. 250. What was the shape and size of this furnace?

203 Ans. It is very hard to tell the size. I should judge about four feet high and about two feet in diameter. I am not certain, you know. In shape it was round.

Cross-int. 251. What kind of fuel was used in it?

Ans. I believe they call it Lehigh coal—hard coal.

Cross-int. 252. What was done in the wooden building which you have marked "Paint-Room?"

Ans. Ornamenting.

Cross-int. 253. What kind of goods were ornamented in this building?

Ans. Sewing machines.

Cross-int. 254. When was this building erected, if you know?

Ans. Couldn't tell you, although I moved it there myself.

Cross-int. 255. Was it used for any purpose before you commenced making sewing machines?

Ans. I think likely it was, but I don't know what for.

Cross-int. 256. How was it used after you gave up making sewing machines?

Ans. Painting landscapes and making picture-frames.

Cross-int. 257. Who used it for these purposes?

Ans. I did, and my help.

Cross-int. 258. If I understand you correctly the door of the kiln opened into this building. All the goods that were to be baked in the kiln had to be brought through this building. Am I right?

Ans. I am in doubt if there was not another door built in the gangway afterwards. I am not certain about that.

Cross-int. 259. The steam oven was over this oven, if I understand you?

Ans. Yes, sir.

Cross-int. 260. Was this steam oven used for any purposes other than drying varnish on your sewing machines, as you have previously testified, while you were in New Britain?

Ans. I believe it could not be used for anything else; made some experiments and found that it could not.

Cross-int. 261. What articles were baked in the lower kiln while you were in the employ of the company?

204 Ans. The sewing machines and my antique goods. That is all I know of.

Cross-int. 262. If I understand you correctly, no one used this oven while you were in the company's employ, except yourself and those working under your directions. Am I right?

Ans. I believe that is correct.

Cross-int. 263. Were English-finish carriage-knobs baked in this oven?

Ans. Not to my knowledge.

Cross-int. 264. Was this oven in the condition you have described it when you left the company's employment in 1859?

Ans. It was to the best of my knowledge, the same as I have described it.

Cross-int. 265. Please examine the plan of Sargent & Co.'s works in New Britain, now shown you, which has just been sent by Mr. Sargent, and say whether the building near the middle of the lot, the dimensions of which are marked 30 x 70 ft., is the one which you have referred to as the rolling and annealing room.

Ans. That is the same building.

Cross-int. 266. Was the addition to that building on the side towards the coal-sheds there when you were there?

A. I don't remember; I couldn't tell.

Cross-int. 267. Were there any other forges in the main building than the one you have mentioned as being on the lower floor?

Ans. There was a blacksmith's forge on every floor, except the packing-room. On the lower floor there were two—one in the machine-shop and one in the iron works.

Cross-int. 268. At which of these forges did you heat the picture-frame that you have mentioned?

Ans. On the second floor; the one above the packing-room.

Cross-int. 269. What was done in the room in which your kiln was besides the baking?

Ans. Nothing.

Cross-int. 270. Where was your powder-bronzing and similar work done?

205 Ans. Same floor—the one above the packing-room in the main building.

Cross-int. 271. Which end of that floor did you occupy for that purpose?

Ans. Toward the iron foundry.

Cross-int. 272. Was this done in a room separated from the rest of the floor?

Ans. It was not—shifted about on the bench wherever the work was done.

Cross-int. 273. Was the antique bronze done in the same room?

Ans. Sizing was done in the same room.

Cross-int. 274. What other work was done in this room?

Ans. Filing, burnishing, and putting up work.

Cross-int. 275. When was the steam oven put in over the oven in the building adjoining the brass foundry?

Ans. I believe, but I may not be correct, between 1857 and 1859.

Cross-int. 276. Was it built at the same time as the other oven, or afterwards?

Ans. I believe the steam oven was put in afterwards.

Cross-int. 277. Was the old oven in the yard in use when you left in 1858?

Ans. Yes, sir.

Cross-int. 278. What was done in it?

Ans. General blacking.

Cross-int. 279. Were these three ovens—namely, the one which you used, and the steam oven over it, and the one in the yard—the only ones on the premises when you left?

Ans. That is all I know of.

Cross-int. 280. In what part of the year 1859 did you leave Mr. Sargent's employ?

Ans. It was in the summer—I don't know the date now.

Cross-int. 281. What business did you go into then?

Ans. Manufacturing coffin trimmings and model and pattern making.

206 Cross-int. 282. Did you visit Sargent & Co.'s works after you left in the summer of 1859?

Ans. I did not. They wouldn't let me.

Cross int. 283. When you used the old oven in the yard for making antique bronze was the oven heated before the articles were put in?

Ans. I don't think it was. I only used it a few times.

Cross-int. 284. I understand, then, that after the articles were put in the fire was started and allowed to burn all night; am I right?

Ans. I believe that was the way they did it; I never knew any thing about the fire there myself.

Cross-int. 285. Do you know whether any additional fuel was put in during the night?

Ans. I don't know.

Cross-int. 286. At what time was the kiln opened in the morning?

Ans. Seven o'clock.

Cross-int. 287. How hot was it then?

Ans. I don't know, only they had to let it stand three or four hours before they could go in.

Cross-int. 288. After the expiration of this three or four hours were the articles cold enough to handle with the naked hand?

Ans. I think they were.

Cross-int. 289. In using your new oven did you heat it before the article of antique bronze was placed in it to be baked?

Ans. Yes, sir.

Cross-int. 290. How hot was it usually when the articles were put in?

Ans. Between 400° and 500° we intended to have it. If we had it over 600° it burst the thermometer, but we did not calculate to have it that way.

Cross-int. 291. Did you watch the thermometer from time to time while the baking was going on?

Ans. Pretty closely after we burst the first thermometer.

Cross-int. 292. About how long did the baking of the antique bronze usually take?

207 Ans. Light color about half an hour and the dark color about an hour and sometimes more.

Cross-int. 293. Do you mean that you made goods of two distinct shades?

Ans. I always tried to improve it, and so I started with the light color and the company wanted it darker.

Cross-int. 294. What shades do you call Exhibits "G," "H," and "H²?"

Ans. Medium.

Cross-int. 295. What heat would be required to produce the colors you have mentioned in answer to cross-int. 292 in the times specified in that answer?

Ans. Between 420° and 450°.

Cross-int. 296. You have testified, I believe, that your new oven was built under the supervision of the boss painter. What was his name?

Ans. His name was Gebhard. I don't know his first name now.

Cross-int. 297. Was he in Mr. Sargent's employ?

Ans. He was and he was not. He worked in my name, but the work was for Mr. Sargent. He worked on the Brocksieper sewing machine and for the Brocksieper Sewing Machine Co.

Cross-int. 298. Did he use the oven in his work?

Ans. Yes, sir.

Cross-int. 299. What work did he do which required the use of the oven?

Ans. Blacking the sewing machines.

Cross-int. 300. Do you know if he is living, and, if so, where he resides?

Ans. I don't know if he is living, and I don't know where he resides.

Cross-int. 301. I understand that you worked at bronzing, etc., for the company under contract. Did you keep any account books or memorandum books relating to the subject?

Ans. I did at that time. I had everything, but I have not seen anything of them in 10 or 15 years.

208 Cross-int. 302. Was it the practice to charge the goods delivered to you to be finished on a memorandum book?

Ans. No, I guess not; never have in none of my contracts.

Cross-int. 303. Was not any memorandum kept of the goods which came into your hands to be finished?

Ans. I don't believe there is and never was.

Cross-int. 304. How did the company know then how much work you had done and how much you were entitled to be paid?

Ans. After the goods are finished they are packed and then credited to me, not charged to me.

Cross-int. 305. Is that the only memorandum that is kept—I mean the one made up when the goods are packed?

Ans. I believe that is the only one the company keeps. I keep my memorandum of what I deliver.

Cross-int. 306. When you left the company in 1859 did you instruct any one in the method of making antique bronze?

Ans. I don't know whether I did; it was not much in my line—only making brass goods and white metal goods.

Cross-int. 307. You continued making this antique bronze until you left Sargent's, I understand.

Ans. I continued to make it as long as I was there.

Cross-int. 308. Did you give any instructions or advice to any one of Mr. Sargent's employees to enable them to continue its manufacture after you had left?

A. No, I did not. I did it openly. I presumed everybody knew it. I never made a secret of it.

Cross-int. 309. How far is Mr. Sargent's factory from P. & F. Corbin's?

Ans. Couple of hundred feet I should judge; close by.

Cross-int. 310. How large are the ovens which are now used at Sargent & Co.'s in coloring the butts which they finish in Berlin bronze? By coloring I mean in this connection the coloring of the metal by heat before the application of oil or varnish.

Ans. The ovens are all alike. I don't know exactly the size, but should judge 4 or 5 feet wide, 6 feet high, and about 5 feet
209 deep. I am not positive about the size. I don't have anything to do with them nowadays.

Cross-int. 311. About how many coat and hat hooks and similar articles were you in the habit of baking at one heating?

Ans. I judge—we didn't make a great many brand-new articles—about 12 dozen in the oven at one time.

Cross-int. 312. Can you now recall the names of any persons employed by you at New Britain between 1856 and 1859 other than those you mentioned at your previous examination?

Ans. I don't hardly believe I can; I might mention hundreds of names, but they might not have worked at that time for me.

Cross-int. 313. Without confining yourself strictly to those three years, can you give the names of any such persons employed by you at New Britain while working for Sargent? If so, please give them.

Ans. James O'Shea, a man by the name of Schneider—Fritz Schneider, I think—Laudecker, Walker, Richter, Tracy, Smith, Weber, Heidecker, Chas. Schnepper; I can't think of any more; Heidecker and O'Shea are in New Haven; Fred. Puehl Duenhart also worked for me.

Cross-int. 314. You have spoken of endeavoring to imitate the finish of Judd's sash-fasteners; what experiments did you make for this purpose?

Ans. I just tried to imitate theirs by painting, used varnish and paints, but finally come to put my antique bronze on, and I got it as near as I possibly could get it.

Cross-int. 315. When did you commence these experiments?

Ans. I believe, if I remember right, it was 1857 or 1858; started as soon as the patent Sargent and Brocksieper sash-fasteners came out.

F. W. BROCKSIEPER.

Attest: JOHN B. MILLS,
Special Examiner.

210 *Deposition of Joseph B. Sargent.*

NEW HAVEN, *May* 3, 1880.

Direct examination by JOHN S. BEACH, Esq., of counsel for defendant:

Int. 1. What is your name, age, residence, and occupation?

Ans. Joseph B. Sargent; age, over 55; residence, New Haven; occupation, manufacturer.

Int. 2. What was your occupation and where did you reside prior to the year 1856?

Ans. I was a merchant in New York city, residing in Brooklyn.

Int. 3. Did you change your residence and occupation about that time; and, if so, when and to what place?

Ans. I changed my residence about May 1, 1856, to New Britain, Connecticut, and took charge of the manufacturing business of the Peck & Walter M'f'g Co.

Int. 4. Who was the foreman of the Peck & Walter M'f'g Co.'s establishment when you went to New Britain?

Ans. The principal foreman was Mr. Purmont Bradford.

Int. 5. Was the article of carriage-knobs among their manufactures when you went there?

Ans. It was.

Int. 6. Was any change made in the process of the manufacture of carriage-knobs by the Peck & Walter M'f'g Co. after you went to New Britain; and, if so, about how soon after?

Ans. There was no change in the process of making what had been made up to the time I went there, but we added a new variety called English-finish carriage-knobs, the process of making which was different from the previous japanned carriage-knobs. That was made immediately or very soon after I went up there.

Int. 7. Will you please describe, if you can, in detail this new process, referring, if you desire, to the exhibits which have already been put in evidence and are upon the table?

Ans. The knobs were cast in the usual way of cast-iron; they were then rolled in rolling barrels to clean off the sand and dirt; they
211 were then taken, each one at a time, and put in a rapidly-revolving lathe, and the surface turned off or filed off with fine files—we usually used files which had been partially worn; they were then taken and covered with a thin coating of English brown varnish, made very thin with spirits of turpentine; they were then placed in an oven or heating-kiln and baked at a high

heat, the heat being under 600° Fahr., but I think usually as high as 450° Fahr., perhaps the first coating sometimes not so high, which colored them to a color varying from a dark straw color to a dark brown, the color depending somewhat upon their location in the kiln, whether at a very high heat or heat a little lower; they were then taken out and subjected to another thin coating of the same material and another similar baking, which turned the color from a very dark brown to a dark purple; they were then taken out and subjected to another coating of the same material and another baking, which, under favorable circumstances as to heat, produced a bright black. Sometimes some of the knobs would show too much purplish color, and, if so, they were subjected to a fourth coating and heat. These knobs, while they were being coated and while they were being baked, stood in rows, on perforated sheets of sheet-iron, and the varnish was put on with a small brush. That completed the process.

Int. 8. What effect, if any, had the heat on that part of the knobs not covered by the varnish?

Ans. As a matter of fact, I know it was colored from a straw color to a dark blue, and no knob could be made black, except that the heat was sufficient to turn the unvarnished part blue.

Int. 9. When did carriage-knobs, finished by this process which you have described, begin to be, and how long continued to be, a regular article of manufacture, and sold by the Peck & Walter M'f'g Co. and by their successors, Sargent & Co.?

Ans. From the latter part of the year 1856 up to the present time, with an exception of about a year, after the 1st — May, 1864, during which time we were not able to make them, not having kilns in which we could get the necessary heat.

Int. 10. Who was conducting the business during this pe-
212 riod of a year in which you could not manufacture the knobs for the reason you have stated?

Ans. The style of the firm was J. B. Sargent & Co. from May 1 to July 1, 1864, and after that Sargent & Co.

Int. 11. This was the year immediately succeeding your removal from New Britain to New Haven, was it not?

Ans. It was.

Int. 12. How did the aggregate thickness of the three coats of varnish upon the knobs, as made by the Peck & Walter M'f'g Co. in 1856 and 1857 and afterwards by this new process, compare with the single coating of asphaltum japan on the old style of knobs?

Ans. The thickness of the three coatings together was not nearly as thick as the one coat of the asphaltum blacking.

Int. 13. What advantages, if any, had the knob made by this new mode over the old japanned knob?

Ans. The coating on the old japan knob was much thicker, seemed to be on above the surface of the knob, and was easily marred and broken by the hammer in driving, and by hard usage, while the coating on the English-finish knob seemed to be on and in and a part of the surface of the knob, and seemed as hard to break as the iron itself.

Int. 14. If at any time while you were at New Britain you enlarged your facilities for heating the knobs please say where it was and what you did.

Ans. Either in the fall of 1856 or spring of 1857, early, I had a two-story building erected, in which were two new baking kilns, which, I think, more than considerably doubled the capacity, and, I think, quadrupled our facilities for japanning and baking—certainly doubled it.

Int. 15. In connection with these new kilns, was there any mode of ascertaining the degree of heat to which the articles were subjected during the process of baking; and, if so, what was it?

Ans. In the wall of the kiln there was a long slot extending from the inside wall to the outside, in which slot was suspended a thermometer, and on the outside of the slot was a plate of glass
213 through which the registering of the mercury in the thermometer could be read.

Int. 16. To how high a degree would this thermometer register?

Ans. Up to 600° Fahr. or over—not less than 600° Fahr.

Int. 17. Do you remember whether you had occasion to purchase more than one theremometer?

Ans. I remember having to supply at different times two new thermometers, in place of those which had burst or broken.

Int. 18. What, as you understood it at the time, caused the bursting or breaking of these thermometers?

Ans. That the mercury in the thermometer got so hot as to vaporize and burst the glass tube.

Int. 19. Referring to the same period when you begun to use these new kilns, and while you were at New Britain, to what other articles of iron manufacture, if any, was the same or any part of the same process that you have described applied, and with what result? Please give in the details both as to the articles and to the process, as well as you can.

Ans. The same process of coating and heating, but with a slightly different mixture, was used in the finish of coat and hat hooks, jamb-hooks, cupboard-catches, which were sold regularly by the company; also, looking-glass frames for toilet stands and some small picture-frames were made; also sash-fasteners were made and sold by the company. There were some other articles that were made and sold on some special orders, but I can't remember what they were.

Int. 20. Were these coat and hat hooks and other articles you have named subjected to as many different coatings and bakings as the knobs?

Ans. They were subjected to only one coating and one heating, usually, which was sufficient to give them the color which we called "antique" bronze. A part of them, after being made what we called "antique" bronze by one coating and one high heating, then had a thin coat of varnish or "sizing," as it was called, put over them, especially over the high points, which were to be treated again, and usually subjected to a partially drying heat, or allowed to dry
214 partially in the open air, and then the prominent points were touched up with a metallic bronze powder of gold color,

heat, the heat being under 600° Fahr., but I think usually as high as 450° Fahr., perhaps the first coating sometimes not so high, which colored them to a color varying from a dark straw color to a dark brown, the color depending somewhat upon their location in the kiln, whether at a very high heat or heat a little lower; they were then taken out and subjected to another thin coating of the same material and another similar baking, which turned the color from a very dark brown to a dark purple; they were then taken out and subjected to another coating of the same material and another baking, which, under favorable circumstances as to heat, produced a bright black. Sometimes some of the knobs would show too much purplish color, and, if so, they were subjected to a fourth coating and heat. These knobs, while they were being coated and while they were being baked, stood in rows, on perforated sheets of sheet-iron, and the varnish was put on with a small brush. That completed the process.

Int. 8. What effect, if any, had the heat on that part of the knobs not covered by the varnish?

Ans. As a matter of fact, I know it was colored from a straw color to a dark blue, and no knob could be made black, except that the heat was sufficient to turn the unvarnished part blue.

Int. 9. When did carriage-knobs, finished by this process which you have described, begin to be, and how long continued to be, a regular article of manufacture, and sold by the Peck & Walter M'f'g Co. and by their successors, Sargent & Co.?

Ans. From the latter part of the year 1856 up to the present time, with an exception of about a year, after the 1st — May, 1864, during which time we were not able to make them, not having kilns in which we could get the necessary heat.

Int. 10. Who was conducting the business during this pe-
212 riod of a year in which you could not manufacture the knobs for the reason you have stated?

Ans. The style of the firm was J. B. Sargent & Co. from May 1 to July 1, 1864, and after that Sargent & Co.

Int. 11. This was the year immediately succeeding your removal from New Britain to New Haven, was it not?

Ans. It was.

Int. 12. How did the aggregate thickness of the three coats of varnish upon the knobs, as made by the Peck & Walter M'f'g Co. in 1856 and 1857 and afterwards by this new process, compare with the single coating of asphaltum japan on the old style of knobs?

Ans. The thickness of the three coatings together was not nearly as thick as the one coat of the asphaltum blacking.

Int. 13. What advantages, if any, had the knob made by this new mode over the old japanned knob?

Ans. The coating on the old japan knob was much thicker, seemed to be on above the surface of the knob, and was easily marred and broken by the hammer in driving, and by hard usage, while the coating on the English-finish knob seemed to be on and in and a part of the surface of the knob, and seemed as hard to break as the iron itself.

Int. 14. If at any time while you were at New Britain you enlarged your facilities for heating the knobs please say where it was and what you did.

Ans. Either in the fall of 1856 or spring of 1857, early, I had a two-story building erected, in which were two new baking kilns, which, I think, more than considerably doubled the capacity, and, I think, quadrupled our facilities for japanning and baking—certainly doubled it.

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214 partially in the open air, and then the prominent points were touched up with a metallic bronze powder of gold color,

which finish we called "antique" and "gold" bronze, and sometimes only "dark and gold" bronze.

Int. 21. How did the degree of heat to which these coat and hat hooks and other articles with the single coating were subjected, producing what you call antique bronze, compare with the degree of heat to which the carriage-knobs were subjected in the process of their manufacture?

Ans. The heat was quite as high.

Int. 22. During what portion of the period that you remained in New Britain did these articles, made by this process and called by you "antique" bronze, continue to be made and sold and in about what quantities?

Ans. Beginning with the year 1857, during the whole time after that we remained in New Britain, which was until May 1, 1864, we were making and selling more or less of the goods, the hooks and sash-fasteners and cupboard-catches, but not in very large quantities. We made and sold a good many gross each year, but it would be impossible for me after so long a time, and considering the very great variety of goods that we made, to recall the quantities with anything like exactness.

Int. 23. Who had charge of the department of the company producing these "antique" bronze goods?

Ans. Mr. F. W. Brocksieper had charge for two or more years, I think two years certainly, to the best of my memory.

Int. 24. Will you please look at the exhibits marked "G," "H," "H^2," "J," "J^2," and "L," which Mr. Brocksieper states that he has recently made for illustration of the articles made by him at New Britain, and say how far, in your judgment, they correctly represent the articles to which you have referred as being made and sold by the Peck & Walter M'f'g Co., in New Britain, and their successors from 1857 to 1864?

Ans. "G," "H," and "H^2" represent the antique bronze; "J," "J^2," and "L" represent the antique and gold. My impression
215 is that many of the antique and gold used to have rather more of the gold bronze on a few of the prominent parts at the end, but in that respect they used to vary from time to time in the process of manufacture according to whether the second coating of sizing became more and less dry. If too much dried it would not hold so much of the yellow bronze.

Int. 25. With the possible exception you have noted do or not these exhibits correctly represent the articles [to] which you have referred in your previous answer as being made and sold by the company in New Britain during the period you have mentioned?

Ans. They represent them correctly.

Int. 26. Will you please look at the Exhibits "A B," "C D," and "E F," and, having reference to the six inside knobs on each plate respectively, say whether or not you recognize them as correct representations of the three different stages of the process of finishing carriage knobs used in New Britain during the period you have stated?

Ans. They are correct representations of the three stages of coating and baking which I have described.

Cross-examination by CHARLES M. REED, Esq., of counsel for complainant:

Cross-int. 27. You have described the color of the knobs after the first heating as varying from dark straw color to dark brown; how would you describe the color of the six middle knobs in Exhibit "A B?"

Ans. I should call those a medium brown, neither the straw color nor the dark brown—not very dark brown.

Cross-int. 28. When you commenced experimenting on knobs with a view of producing a better finish what did you first do?

Ans. I first made enquiries from various parties who I thought might know as to the process used by the English manufacturers; after repeated inquiries made by myself, and, as I learned, by Mr. Bradford, we learned that the English manufacturers used English brown varnish. I got some English brown varnish and Mr. Bradford applied it; the particulars of the first way he applied it
216 in his first experiments have passed from my memory. The first results were not a success in getting black. We afterwards learned, partly by inquiry and partly by experience, the necessity of diluting the brown varnish very thin with spirits of turpentine, putting it on very thin, using three and sometimes four coats, and a baking at a high heat after each coat.

Cross-int. 29. From whom did you obtain this information as to the practice of the English manufacturers of knobs?

Ans. I learned [it] from a German dealer in varnish in North William St., New York; from some lock-varnishers and also from conversation with the importers of English knobs, whose names I now cannot remember.

Cross-int. 30. What other American manufacturers of carriage-knobs were engaged in that business while you were in New Britain, so far as you know?

Ans. I don't know that there was any other manufacturer of japanned carriage-knobs at that time in the country. Blake Bros. have manufactured them since then; but whether at that time, I do not know. There were other manufacturers of brass and silver-plated carriage-knobs, very likely.

Cross-int. 31. At how early a date were japanned carriage-knobs made by other American manufacturers, so far as you recollect?

Ans. I don't know of any other manufacturers of japanned carriage-knobs in the country now, except ourselves and the Blake Bros. Hardware Co., although some other manufacturers sell japanned carriage-knobs as of their own manufacture; but I think they buy them either from ourselves or from the Blake Bros. Hardware Co.

Cross-int. 32. What concerns do you refer to in the latter part of your answer?

Ans. Carrington M'f'g Co., of Waterbury; C. Cowles & Co., of New Haven. That is all I know.

Cross-int. 33. If I understand you correctly, you know of no other parties who have manufactured japanned carriage-knobs in this country from 1856 to the present time?

Ans. No.

217 Cross-int. 34. You have spoken of Blake Bros. Hardware Co.; do you know in what way they japan knobs?

Ans. I do not.

Cross-int. 35. How does the selling price of these knobs compare with that of those made by you?

Ans. I think their price, to the best of my knowledge and belief, compares about even with our common japan carriage-knobs. All I know about it is from parties wanting to buy knobs from us.

Cross-int. 36. Do they manufacture a japanned carriage-knob which they call English finish?

Ans. I don't know that they do.

Cross-int. 37. What degree of familiarity had you with the practical details of manufacturing these knobs and the different kinds of hardware which you say were made by substantially the same process?

Ans. During the experiments of Mr. Bradford on the carriage-knobs I watched the operation as closely as I was able, giving all the operations much attention, and after that I noticed the operations of applying the varnish from time to time, and the heat to which they were subjected, in my frequent visits during the day to all departments of the premises. The latter part of the answer refers not only to carriage-knobs, but to the other articles being bronzed.

Cross-int. 38. What proportion of the hat and coat hooks and jamb-hooks and similar articles which were made at your factory from 1856 to 1864 were finished either in the antique bronze or the dark and gold broze?

Ans. Quite a small proportion—we were very large manfacturers of japanned goods of those descriptions.

Cross-int. 39. Did the demand for goods so finished increase during that time?

Ans. There was an increase, because when we begun it there was no demand at all, except for the sash-fasteners and English-finished carriage-knobs.

Cross-int. 40. Did the demand increase throughout the whole period from 1856 to 1864?

Ans. Not rapidly, but I should think steadily.

218 Cross-int. 41. How large were your sales of these articles during the year or two years just prior to your leaving New Britain in 1864?

Ans. I have no distinct recollection that would enable me to answer that question with any definiteness.

Cross-int. 42. The books of the Peck & Walter Co. and of the firm of J. B. Sargent & Co. during that time would show the amount of such sales, would they not?

Ans. They would if they were in existence probably.

Cross-int. 43. What has become of those books?

Ans. I doubt whether many of the books of the Peck & Walter M'f'g Co. were ever removed to New Haven—certainly not any except of a then recent date—and the books of J. B. Sargent & Co.

haven't been in existence, certainly not within the past ten years, nor have any of the Peck & Walter M'f'g Co., except the record book, been in existence during the last ten years, but were sold for waste paper.

Cross-int. 44. The latter part of your answer refers to the books brought from New Britain to New Haven?

Ans. It does, but those not brought to New Haven were sold or destroyed before we removed to New Haven.

Cross-int. 45. Who were the selling agents of the Peck & Walter Co. and J. B. Sargent & Co. between 1856 and 1864?

Ans. It was Sargent & Co., of New York, or Sargent Brother & Co. it was part of the time.

Cross-int. 46. Were you a member of that firm?

Ans. I was of Sargent Brother & Co. and of Sargent & Co. both.

Cross-int. 49. Where did that firm do business?

Ans. 24 Cliff St., 85 Beekman St. and 70 Beekman St.

Cross-int. 50. Were all the goods of the Peck & Walter Co. from 1856 to 1864 sold through this concern?

Ans. Very much the largest part of them were.

Cross-int. 51. Are their books kept during this period in existence?

Ans. No; they are not.

Cross-int. 52. What has become of them?

Ans. They have been sold for waste paper, as I understand.

Cross-int. 53. How long ago?

219 Ans. I can't tell how long ago those particular books were sold, but it has always been the custom of the concern to clean out everything but any unsettled accounts, which are few, the receipts, and some other important papers, once in every few years. I presume that all the old books have gone in that way. I have no positive knowledge, however, of it.

Cross-int. 54. Will you please make inquiries on the subject, and if any books kept between the dates above mentioned showing sales of goods made by Peck & Walter Co. or J. B. Sargent & Co. are in existence have the same brought before the examiner in this case?

Ans. I will inquire. If there are any I will have them produced.

Cross-int. 55. Of whom did the firms of Sargent Brothers & Co. and Sargent & Co. consist between the years of 1856 and 1864?

Ans. The firm of Sargent Brothers & Co. consisted of Geo. H. Sargent and Joseph B. Sargent. The firm of Sargent & Co. was made up of the same partners; no more.

Cross-int. 56. Will you give the names of all persons employed by either of those concerns between the dates above mentioned that you can now recollect, and state at the same time, as well as you can, where such persons now reside, if living?

Ans. There is a man named A. P. Butler—I am not quite sure of his initials—who did reside in New York. I don't know his present residence. James Dempsey and Thos. Dempsey, who did reside in New York. I don't know their present residences. Thos. J. Atkins, who did and, I think, now resides in Brooklyn. I do not remember

any other names that I think were there at that time. Mr. Geo. Munson [and] Wm. J. Ladd, both residing in Brooklyn, came there in the latter part of that period, I think; I am not quite sure.

Cross-int. 57. Did the Peck & Walter Co. and J. B. Sargent & Co. have selling agents in other cities than New York?

Ans. They did not at that time. Peck & Walter Co. had selling agents up to nearly 1856, when they were all withdrawn with the exception of those in New York.

Cross-int. 58. Who were these agents, and where located?

220 Ans. There was one in Baltimore, whose name I don't remember; one in Philadelphia, under the firm of N. L. Hart & Co., I think; one in Boston; the name of the agent was Kellogg.

Cross-int. 59. Did these parties who acted as agents prior to 1856 continue afterwards to sell goods made by the Peck & Walter Co.?

Ans. I don't remember as to the Baltimore concern whether they did or did not. I think the Philadelphia concern did to some extent afterwards, and I think the Boston concern went out of business entirely very soon or immediately.

Cross-int. 60. Can you name any parties who purchased from the Peck & Walter Co. or J. B. Sargent & Co., either directly or through the house in New York, articles finished either in the antique bronze or the dark and gold bronze?

Ans. I cannot recollect with any certainty the names of any customers who bought these particular articles or any other particular articles.

Cross-int. 61. Will you give the names of any customers of the Peck & Walter Co. and J. B. Sargent & Co. or of the New York house who acted as their agents between the years 1856 and 1864?

Ans. The customers of the New York house, I remember some of them—May & Sherman, New York; Cornell & Willis, New York; Wolffe & Bishop, New York; Wolffe, Dust & Fisher, New York; Erastus Corning & Co., of Albany. Bohen & Brother, I think, was the name of Augusta, Ga.; Slark, Day & Stauffer, of New Orleans. There are a good many names, but I think most all of those concerns who were customers then are out of business now, and their names do not occur to me now.

Cross-int. 62. Do you recall the names of any customers in Boston or vicinity?

Ans. There was the predecessor of Otis D. Dana, who was a customer to some extent; Butler, Hill & Co., who was in business at that time in Boston, who used to buy goods from us. I think Joel Parkman, Dock Square, who was in business at that time, I think, and quite a number of other parties in Boston whose names I don't remember—gone out of business.

221 Cross-int. 63. These parties whom you have mentioned were all hardware dealers, I presume?

Ans. They were.

Cross-int. 64. In what part of the country were the bulk of your articles of builders' hardware sold, between the dates above mentioned?

Ans. They were pretty evenly spread over the whole United States

and Canada in nearly every town large enough to have a dealer in hardware exclusively, but more largely in the larger cities.

Cross-int. 65. Did you, or Peck & Walter Co., or the New York concern, employ a traveling salesman during dates mentioned?

Ans. I did most or all of the traveling for the Peck & Walter M'f'g Co. in New England, with the exception of one man, whose name I have forgotten, and who I think is dead, who was employed as a regular traveler, and the New York concern had several travelers, some of whom used to occasionally make a trip through New England.

Cross-int. 66. Can you give the names of any of these persons?

Ans. My brother and partner in New York traveled, I think, in the early part of the time somewhat on short trips. Thos. J. Atkins traveled, I think, from 1857 until after the beginning of the war, some year or two, and a man named Curtis, from Stratford, traveled for the New York house after being in connection with and starting from the New Britain factory, though I believe he was under the pay of the New York house.

Cross-int. 67. Can you give the full name of this Mr. Curtis and his present residence? If so, please do so.

Ans. I don't remember his name. He was lost in the Ohio river.

Cross-int. 68. During the whole of the time that you were carrying on the business in New Britain you kept yourself informed of the kind of goods and styles of manufacture adopted by your competitors in business, did you not?

Ans. Fairly well.

Cross-int. 69. Did any of them finish articles of builders' hardware or any other articles in the style which you have called "antique" bronze?

Ans. I am not aware that they did with the same finish.

222 Cross-int. 70. Was the finish on any of the articles made by these parties substantially the same in appearance as the "antique" bronze?

Ans. I know some that were finished a brown color, but I know of none that had the salient prominent points polished off to represent "antique" bronze.

Cross-int. 71. Did the goods referred to resemble the darker portions of this "antique" bronze or the lighter?

Ans. There were goods made in Boston that closely resembled the dark colors, perhaps having a little more green in them—Austin's sash-fasteners.

Cross-int. 72. By whom were those made?

Ans. I don't know by whom they were made.

Cross-int. 73. Are these the articles referred to in your answer to cross-interrogatory 70?

Ans. They were part of those referred to.

Cross-int. 74. Please mention any others and say which shade of the antique bronze they resembled?

Ans. They were sash-fasteners made by Morton, Judd & Co., I think that was the name of the firm in New Britain, the color of

which I don't remember exactly, but was, I think, a cross between these two shades of this "antique" bronze.

Cross-int. 75. Did the Peck & Walter Co. manufacture Judd's sash-fastener at any time; if so, where?

Ans. They never did that I am aware of.

Cross-int. 76. Such fasteners were on the company's price lists as a part of its regular line of goods, were they not?

Ans. They were during part of the time, perhaps all the time.

Cross-int. 77. Did the company purchase then of Judd & Co. to sell again?

Ans. They did.

Cross-int. 78. What other concerns were engaged in the manufacture of builders' hardware between 1856 and 1864?

Ans. Russell & Erwin M'f'g Co., P. & F. Corbin, the Hart M'f'g Co., Mallory, Wheeler & Co., Squires & Parsons, Norwalk Lock Co. I don't remember any other names who were in builders'
223 hardware business, except Morton, Judd & Co., whom I have mentioned.

Cross-int. 79. Where were Squires & Parsons located?

Ans. In Branford.

Cross-int. 80. Are they still doing business?

Ans. They are succeeded by the Branford Lock Works.

Cross-int. 81. Were there any other concerns engaged in the manufacture of ornamental iron work between the dates mentioned; if so, will you please name them?

Ans. I don't call to mind any.

Cross-int. 82. When did you last see any articles of the antique bronze or dark and gold bronze, other than the articles recently prepared for use as exhibits in this and other cases?

Ans. Confining the terms "antique" bronze and "dark and gold" bronze to the coat and hat hooks like Def'ts' Exhibits "G," "H," "H^2," "L," "J," and "J^2" I can't say that we have made any since we came to New Haven, but I think we had some considerable stock on hand, which was removed from New Britain to New Haven and gradually sold, but I can't tell the date that I last saw it.

Cross-int. 83. Why was the manufacture of this style of goods discontinued?

Ans. We were obliged to give it up when we first came to New Haven for want of sufficient heat in our baking-ovens, and we introduced brass coat and hat hooks, chiefly made from cast brass, with porcelain knobs, which took their place as a nice article.

Cross-int. 84. How large were your sales of English-finish knobs while you were in New Britain?

Ans. I can't remember; but most every customer for carriage hardware took a few every season.

Cross-int. 85. When was your attention first called to Mr. Tucker's patent, here in suit, or the finish which is commonly known as "Tucker's bronze?"

Ans. I can't remember.

Cross-int. 86. Had you any communication on the subject with the Tucker M'f'g Co., of Boston, or their counsel, at or about the time of

Mr. Tucker's suit against them for infringement of his patent?

224 Ans. Not that I remember.

Cross-int. 87. When did you first have any personal communication with Mr. Tucker on this subject?

Ans. I don't remember.

Cross-int. 88. Do you remember any interview with him on the subject about the time of the decision of the circuit court in his case against the Tucker M'f'g Co., above mentioned—that is, in September, 1876?

Ans. I don't remember anything about the time of the decision of his suit against the Tucker M'f'g Co., nor do I remember the date of any time that he came to see me.

Cross-int. 89. Please examine the letter now shown you; state whether it was written by you to Mr. Tucker at or about the time at which it bears date.

Ans. It was written by me, and I presume at the time it was dated.

(Counsel for complainant offers the letter in evidence, and it is marked Complainant's Exhibit Sargent Letter No. 1, J. Bell, N. P.)

Cross-int. 90. In this letter you say, "Before ever doing any bronzing we obtained copies of your patents and have kept clear of them;" what did you mean by that statement?

Ans. I said in this letter "We have never 'bronzed' our work in the manner described in your patents; before ever doing any 'bronzing' we obtained copies of your patent, and have kept clear of them." That clause refers, I have no doubt, to the bronzing of butts exclusively, wherein there were straight lines of raised surfaces in the ornamentation, and, at that time, I associated Tucker's patent with the bronzing in straight lines, such as is on chandelier work, which I used to think was a necessary element of his patent, and that it must be done with linseed oil, pure and simple. We did not follow his patent in the coloring of the butts, not only not in the order of procedure, but we did not use clear linseed oil; the coloring of butts was done by heat alone, which I supposed avoided his patent, although the butts had the straight, prominent lines, as in the chandelier work, which I had known as Tucker bronzing.

225 Cross-int. 91. At the date of writing this letter you had seen Mr. Tucker's patent, as the letter states; is there anything in the patent in reference to straight lines of raised surfaces either as a part of the patented process or otherwise?

Ans. If I remember correctly there is something about raised surfaces in the patent, and I had associated his patent with the Tucker bronzing that I had seen on chandelier work, and perhaps on hardware having raised lines, with polished surfaces either straight or curved, and, not being in the habit of closely considering patents and explaining them, I wrote the letter probably without much consideration of the subject and without consulting any counsel.

Cross-int. 92. The letter refers to an interview with Mr. Tucker, apparently a short time before writing him. Did Mr. Tucker then

claim that the butt was the only article which you were manufacturing in infringement of his patent?

Ans. I don't remember anything about it. I don't remember that he was there.

Cross-int. 93. Were you, at the time of writing this letter, manufacturing articles of iron other than butts which you finished in imitation of bronze?

Ans. We were.

Cross-int. 94. What articles were you then finishing in this way and what was the process?

Ans. We were finishing, I presume, quite a variety, such as drawer-pulls, cupboard-catches, door-handles. The process was rolling them, sometimes polishing the surface, putting on a coat of varnish, bronzing varnish as we called it, having some coloring matter in it—a little—and then baking the goods till the varnish became dry and hard, but not subjecting them to a very high heat.

Cross-int. 95. What name did you give to this style of ornamentation?

Ans. I think we called them all "Berlin bronze" at that time.

Cross-int. 96. The same name is applied also to the bronzed iron butts, is it not?

Ans. It was, though the finish is quite different.

226 Cross-int. 97. Have you ever had any other written communication with Mr. Tucker in reference to his patents since writing the letter above referred to?

Ans. I think I have, but I have never considered them of enough consequence while writing them to keep a copy of them.

Cross-int. 98. Will you please examine the letter now shown you and state if it was written by you to Mr. Tucker at or about the time at which it bears date?

Ans. This is my letter.

(Counsel for complainants puts the letter in evidence, and it is marked Complainant's Exhibit "Sargent Letter No. 2.")

J. B. SARGENT.

(Hearing adjourned until May 4, 1880, at 10 o'clock a. m.)

Evidence for Defendants.

227 United States Circuit Court, District of Connecticut. In Equity.

HIRAM TUCKER *vs.* SARGENT & Co.

Testimony taken on the part of the defendants, under and pursuant to the 67th rule of the Supreme Court of the United States in equity, as amended, before John B. Mills, special examiner, pursuant to notice and by consent of parties.

NEW HAVEN, *Dec. 7th*, 1880—9.30 o'clock a m.

Present: Elihu G. Loomis, Esq., of counsel for complainant; John S. Beach, Esq., C. E. Mitchell, Esq., of counsel for defendants.

We stipulate to have the testimony in the above suit taken orally before John B. Mills as special examiner.

Dated December 7th, 1880.

ELIHU G. LOOMIS,
Of Counsel for Complainant.
C. E. MITCHELL,
Of Counsel for Defendants.

228 JOHN RUFF, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answed as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. John Ruff; age, 54; I reside in New Haven; occupation, mechanic; contractor now in Sargent & Co.'s.

Int. 2. You say that you are a contractor with Sargent & Co.; for the manufacture of what articles are you a contractor?

Ans. Hardware.

Int. 3. Please mention some of the different kinds of hardware.

Ans. Well, I have from 1,200 to 1,500 different numbers which I make, including cupboard-catches, bolts, sash-fasteners, coat and hat hooks, chandelier-hooks, lamp-hooks, cup-hooks, screw-hooks; we make different articles, such as picture nails, all kinds of turnings, such as brass carriage-knobs and coffin trimmings—most any kind of brass work, such as caps, rims, and all such kind of things—there may be a good many other articles which I do not remember at present, but these are the main articles which we make.

Int. 4. Are you a native of the United States. If not, where were you born and when did you come to this country?

Ans. I was born in Germany. I came to this country in the spring of 1850.

Int. 5. Where did you first go and into whose employment, after you came?

229 Ans. Colt's Armory, in Hartford, Conn.

Int. 6. How long did you remain there?

Ans. From spring to fall.

Int. 7. If, at any time, you went into the employment of Peck & Walter, New Britain, Conn., when was it?

Ans. In 1851; in January.

Int. 8. Have you a brother in this country, and, if so, what is his name?

Ans. I have. His name is Joseph J. Ruff.

Int. 9. When did he come to the United States?

Ans. If I remember right, it was in 1852.

Int. 10. Into whose employment did he go on his arrival?

Ans. Peck & Walter, New Britain.

Int. 11. Were you at that time in the employment of that company?

Ans. I was.

Int. 12. What was the nature of your employment; in what branch of the business were you engaged?

Ans. I worked on patterns, tools, and finishing work.

Int. 13. What was the business which Peck & Walter carried on at New Britain?

Ans. Hardware business.

Int. 14. Was the japanning of hardware a part of their business?

Ans. It was.

Int. 15. The japanning of hardware involves the necessity of a kiln for baking, does it not?

Ans. It does.

Int. 16. Did Peck & Walter, at any time after you went there, remove the locality of their place of manufacture, and, if so, in what year?

Ans. They did, and it took another name, Peck & Walter Manufacturing Company, and, if I remember right, it was in the year 1853.

Int. 17. Was there a kiln on the premises to which the Peck & Walter M'f'g Co. removed at the time of their removal?

Ans. There was one.

Int. 18. Where was it located?

Ans. In the yard; east side from the main building.

230 Int. 19. How long did you remain in the employment of the Peck & Walter M'f'g Co. before you left?

Ans. Till 1854; in the fall I left them.

Int. 20. Was this kiln which you have described as located in the yard there when you left in 1854?

Ans. It was there.

Int. 21. Who was in charge of the manufacturing business of Peck & Walter M'f'g Co., at the time when you left in 1854?

Ans. Mr. Peck, old gentleman, I don't know his first name, father of the young Peck living now.

Int. 22. Did you return to the employment of Peck & Walter M'f'g Co. at any time; and, if so, when?

Ans. I did return in 1857, early in the spring.

Int. 23. Whom did you find in charge of the manufacturing business of Peck & Walter M'f'g Co. at the time of your return in the spring of 1857?

Ans. Mr. J. B. Sargent.

Int. 24. Did you find the yard kiln there at the time of your return?

Ans. I did.

Int. 25. Do you know George J. Gebhardt?

Ans. I did and I do.

Int. 26. What was his business in the year 1857, and where was he employed?

Ans. He was employed by Peck & Walter M'f'g Co. as japanner—ornamenter in making sewing machines—finishing the ornamental parts of sewing machines.

Int. 27. Did he, in the prosecution of this business, use a kiln for baking?

Ans. He did.

Int. 28. Where was that kiln located?

Ans. Mr. Gebhardt used another kiln in the west end of the brass foundry.

Int. 29. Was that kiln, on the west end of the brass foundry, built before or after your return in the spring of 1857; and, if after, how soon after?

Ans. It was after and, as far as I remember, I could not fix the exact time, but in about two or three months after; so that it was built in spring. That is the recollection I have of that kiln.

231 Int. 30. Do you know whether it was built for Mr. Gebhardt or under his supervision?

Ans. I think so, because before Mr. Gebhardt was there they used the old kiln in the yard.

Int. 31. How was the Gebhardt kiln heated?

Ans. From the brass foundry building. The fire was made in the brass foundry, where they put in the coal and took out the ashes.

Int. 32. Do mean it was heated by the direct heat of a coal fire?

Ans. It was heated by coal fire.

Int. 33. Please look at the articles marked Defendants' Exhibits "Art Castings Nos. 1 and 2," J. B. M., special examiner, and relate in your own way when and where and by whom and by what process you first saw any article of iron bronzed or colored on its outer surface so as to look like these exhibits.

Ans. The first time I saw it done was by F. W. Brocksieper. I had the castings called a watch stand, and these watch stands looked not as if it was painted; neither did they look the natural color of iron. I got the casting from a man; I could not remember his name now. He brought it from the old country, and, if I remember right, that was in the year 1852. I did show Mr. Brocksieper the article, and I told him I wished to know how that was done, because it did not look like the natural iron; neither could I see any paint on it. Brocksieper said I must know all about it, as a lock-maker from the old country. I told him I did not know how it was done (answer objected to as incompetent), and I told him neither did I believe he knew how it was done, and we had some words about it, and Brocksieper promised to show me that he knew how to do it. Then I took the original—there were two parts, a stand, and the other part was screwed on—apart and brought it to Mr. P. Bradford, at that time foreman in the iron foundry, and I requested him to make me castings from it, which he did; and after receiving the castings Brocksieper told me to brush it clean, and I brushed it with a wire brush made like a broom; and when it was clean I showed it to Mr. F. W. Brocksieper, and he left and went away and came back with a cup of oil—what he called

232 linseed oil—and a brush, and then he began to brush the stand and the other part all over with the oil—what he called linseed oil; then we went down stairs to the forge fire. He took it in forging-tongs and held it over the fire till it was done, and it looked what I at that time thought superior to the original, and I

was satisfied that Mr. Brockseiper knew how to do it, and myself too.

Int. 34. Do you remember what that watch stand from which you had the castings made was intended to imitate in its pattern?

Ans. It represented the Strasbourg clock.

Int. 35. When you first saw the original watch stand what was its external appearance?

Ans. It did not look like the natural iron, neither did I see any painting on it.

Int. 36. What did it resemble in its color and appearance?

Ans. The edges of the castings what was rubbed off clean looked like brass or bronze color.

Int 37. What did you suppose it to be when you first saw it, and I mean as to its external color and appearance?

(Objected to as incompetent.)

Ans. My first impression was that it was brass castings till further examination I found it was iron; I scratched it with a knife.

Int. 38. What, if anything, do you know of Mr. Brocksieper's coloring or bronzing other articles of iron by the same process after the watch case was bronzed and before you left the employment of the Peck & Walter Co. in 1855?

Ans. I have seen some of these things like those lying on the table—"Art Castings Nos. 1 and 2."

Int. 39. When were articles like Exhibits "Art Castings Nos. 1 and 2" made and by whom?

Ans. They were made by F. W. Brocksieper; he done the finishing.

Int. 40. When were they made, having reference to the time when you left in 1855?

Ans. They were made before I left.

Int. 41. Do you know the processs which he used in making these articles?

Ans. I think he done it the same as the first.

233 Int. 42. You mean by the same process as the coloring of the watch stand?

Ans. I mean the same, but Mr. Brocksieper told me (objected to) that he used some turpentine and varnish mixed with the oil in making these exhibits.

Int. 43. When was it, with reference to the time you left, that Mr. Brocksieper told you this, before or after?

(Objected to.)

Ans. As far as I remember, after, and it was in 1858 when he was doing more bronzing—what we called bronzing at that time.

Int. 44. Will you state how far the exhibits, "Art Castings Nos. 1 and 2," correctly represent in their color and finish the articles made by Mr. Brocksieper before you left Peck & Walter M f'g Co. in 1855?

Ans. I should say it was the same color with the exception that we did not put quite so much finish on them as on these.

Int. 45. You say that you returned to the employment of Peck & Walter M'f'g Co. in the spring of 1857; how long did you remain in the employment of that company and of its successors, and in what capacity?

Ans. I did return, and remained since that time as contractor.

Int. 46. What is the name or style under which the present successors of Peck & Walter carry on their business?

Ans. Sargent & Co.

Int. 47. You say that on your return to the Peck & Walter M'f'g Co., in the spring of 1857, you found Mr. J. B. Sargent in charge of the business; has he continued to have charge of it ever since?

Ans. He has.

Int. 48. Do you remember under what name or style the immediate successors of Peck & Walter M'f'g Co. carried on the business in New Britain?

Ans. J. B. Sargent & Co.

Int. 49. Do you remember what year it was that J. B. Sargent & Co. removed from New Britain to New Haven?

Ans. In the year 1864, in the spring.

Int. 50. Did you come with them?

Ans. I did.

234 Int. 51. Did Mr. Brocksieper come with them?

Ans. He did not; he was not employed at that time by the company.

Int. 52. How long before that had he left the employment of the company—in what year?

Ans. If I remember right it was in 1859 when he left the employment of the company.

Int. 53. Now, to go back to the interval between your return to the Peck & Walter M'f'g Co., in the spring of 1857, and the time when Mr. Brocksieper left, in 1859, did you see during that period any other articles of manufacture which Mr. Brocksieper had colored in imitation of bronze; and, if so, what were they?

Ans. I did see him coloring coat and hat hooks, what we call Nos. 5 and 6, single jamb hooks, and double jamb hooks; saw some cupboard-catches what he bronzed.

Int. 54. Do you know what kiln Mr. Brocksieper used in coloring or bronzing the articles mentioned by you in your last answer? Was it the yard kiln or the Gebhardt kiln?

(Objected to as leading.)

Ans. I have not seen him doing any of this work myself, but he was at work in the building where Mr. Gebhardt's kiln was; I mean in 1858, when he done this work. He showed me a box full of hooks which he done, but I have not seen him do it, but when they was finished he come up to show them to me in a box, when he had about fifteen dozen, I should think, in the box.

Int. 55. Look at the exhibits marked Defendants' Exhibit "H," "H²," and "G" and say how they compare in appearance and color and finish with the articles Mr. Brocksieper showed you in 1858.

Ans. As far as I can remember they look exactly like them that he done at that time.

235 Cross-examined by E. G. LOOMIS, Esq., of counsel for complainant:

Cross-interrogatory 56. In answer to interrogatory 2 you say you are a contractor with Sargent & Company. Explain what you mean by being a contractor. What interest have you in the business?

Ans. A man what takes certain jobs for a price agreed upon before, and finishes the work according to the agreement, hiring his own help and finishing in his own way.

Cr.-int. 57. How long have you been such contractor for J. B. Sargent & Co.? What year did you take your first contract?

Ans. I take the first contract in 1857, in the spring, when I returned to the company, and I remained since that time.

Cr.-int. 58. Exactly what have you contracted to do to articles of hardware for Mr. Sargent?

Ans. In finishing all kind of articles what we had at that time at the price named. I did not have anything to do with the casting—only finishing, turning, filing.

Cr.-int. 59. Do I understand you that your contracts with Sargent & Co. and its predecessors have referred only to the turning, finishing, and filing of hardware castings?

Ans. There was a good deal of work done without casting—what is done out of sheet-brass, sheet-iron, [and] wire. There was silvering, lacquering, painting, and bronzing included in this job. That means flower bronzing—not antique bronzing.

Cr.-int. 60. Do I understand you that you have never had any contracts with Sargent & Co. or its predecessors for producing the kind of finish like that on Exhibits "1 and 2, Art Castings?"

Ans. I had not.

Cr.-int. 61. Name the contractors who have taken contracts of Sargent for producing such finish since you have been in his employ.

Ans. I do not know that there was ever a contractor. Mr. Brocksieper was foreman at that time, at a yearly salary, as far as I know, and he did do this kind of work when he was foreman.

236 Cr.-int. 62. Do I understand you to say that the only work done by Sargent & Co. and their predecessors, like "Art Exhibits Nos. 1 and 2," is that done by Mr. Brocksieper?

Ans. I don't know of any other one who done it except Brocksieper.

Cr.-int. 63. Enumerate the kinds of finish which are to-day put by Sargent & Co. on the articles of cast-iron hardware sold by them.

(Objected to be not relevant to cross-examination, and as not included in province and contracts of this witness.)

Ans. Well, they do japanning, painting, galvanizing, tinning, silvering, nickeling, gilding, imperial bronze, and different other kinds

of bronzing what I don't know the regular name of, and what they call Berlin bronze, and imitation bronze and polishing and lacquering, burnishing, and all such things.

Cr.-int. 64. Name all the contractors who have had contracts with Sargent & Co. and their predecessors for producing the finish known as Berlin bronze.

Ans. Well, I know of only one contractor who had to do with this. The present is George Johnson, and before him it was his father. I don't know his first name.

Cr.-int. 65. Were you in the employ of Sargent & Co. or their predecessors when they began the manufacture of the finish of what is known as Berlin bronze?

Ans. I was.

Cr.-int. 66. Do I understand you that the father of George Johnson, the present contractor, was the first contractor who made that finish?

Ans. As far as I know he was the very first man who made a contract to do this kind of work. Before this it was included in Mr. Brocksieper's jobs.

Cr.-int. 67. Please state, if you remember, what year it was that Mr. Johnson first made this contract, and whether it was in New Britain or here.

Ans. If I remember right it was in the year 1865 or 1866, here in New Haven.

Cr.-int. 68. State, if you remember, what year Sargent first began to make and sell the finish known as Berlin bronze.

Ans. I cannot tell exactly the time when they started.

237 Cr.-int. 69. Was it before or since he came to New Haven?

Ans. The antique bronze we done up in New Britain and the Berlin bronze here in New Haven.

Cr.-int. 70. How soon, after he came to New Haven, did Sargent begin the manufacture of the finish known as Berlin bronze?

Ans. I can't set the time except by looking over my books; I could find out.

Cr.-int. 71. Will you look over your books and come prepared to answer that cross-interrogatory at the time to which this taking of this deposition shall be adjourned?

Ans. I will look over my books.

Cr.-int. 72. What was the nature of your employment at Colt's armory, Hartford?

Ans. Finishing springs, filing, and fitting.

Cr. int. 73. Describe the kind of work on which you were employed the first time you worked for Peck & Walter.

Ans. Worked on patterns for window-sash rollers; in all kind of pattern work at that time that we made; I don't remember exactly what kind of patterns we did make; also on punch and dies, what was used under the press for pressing out goods and finishing goods for the market, such as coat and hat hooks, Nos. 5 and 6, in brass; iron I had nothing to do with.

Cr.-int. 74. I understand you had nothing to do with iron work before your second employment by Peck & Walter; am I right?

Ans. Surely we had; they built new buildings for our use, where all Germans who worked there in that building, and there we started finishing different kinds of coat and hat hooks with porcelain knobs on them; also fancy cupboard-catches; and then was the time when we first made these horses for saddlers' signs in that building.

Cr.-int. 75. Did you personally work for Peck & Walter the first time you were in their employ, up to the time you left, on iron castings; if so, what did you do to them? I ask this because I understood you to say, in the last clause of your answer to cross-interrogatory 73, "Iron I had nothing to do with."

238 Ans. I didn't mean to say that. I said we finished the brass coat and hat hooks Nos. 5 and 6. Nos. 5 and 6 iron coat and hat hooks I had nothing to do with.

Cr.-int. 76. Do you mean to say that you worked on patterns only and these patterns in brass throughout the first time you worked for Peck & Walter?

Ans. No, sir; I don't mean to say that. All kinds of work, besides patterns, fixing locks, pumps, and all kind of work what was called for, what a lock-maker from the old country should be able to do.

Cr.-int. 77. Have you ever made any finish like that on "Art Exhibits Nos. 1 and 2" yourself, personally?

Ans. I done the cleaning, anything that was filing, but not bronzing.

Cr.-int. 78. I understand you to say, no; you never have?

Ans. I mean to say that I done the cleaning, finishing, so far as cleaning, filing off gates, and have it all prepared for bronzing.

Cr.-int. 79. Do I understand that you have never done bronzing yourself like this on "Art Exhibits Nos. 1 and 2;" that the process has never gone farther than cleaning the castings for bronzing in your hands; am I right?

Ans. Yes, sir; I made some for myself, but not for the company. I do remember that I made one or more sewing-screws; it was a dolphin, for use like a sewing-bird; it was cast-iron, and I finished it the same way.

Cr.-int. 80. When did you do this?

Ans. I should think, if my remembrance is right, in 1852 or 1853. It was before these sewing-birds came out; at least before I saw these sewing-birds popular around.

Cr.-int. 81. Where is the dolphin now that you said you made; what did you do with it?

Ans. I can tell you what I done with it, but where they are now I cannot tell you. One I presented to Mrs. Brocksieper, the wife of F. W. Brocksieper, and the others I presented to the packing-room girls what was working there at that time.

Cr.-int. 82. Was this before or after the experiments which you have described in your answer to interrogatory 33?

Ans. It was after these watch-stands were made.

239 Cr.-int. 83. Describe fully the process by which you prepared the dolphin and produced this bronze on it.

Ans. First I took the casting, made a joint, put screw-hole in for the spring, smoothed it all off, brushed it and chased it, where it was necessary, made a screw and the thing where the screw goes in—a sort of a loop—I don't know what you call it, and then when everything was clean I took some of that oil which Mr. Brocksieper gave me and brushed it down the different parts of the dolphin, loop, and screw, and then done every piece singly over the fire on the forge, and then I put them together, put a spring on, rivet in the joint and rivet on the loop, and put the screw in, rivet the washer on the screw inside, and then I call it finished.

Cr.-int. 84. What was the weight of the casting?

Ans. I could not exactly tell you. The whole, when it was together, might not weigh over three ounces, maybe less; cannot tell exactly.

Cr.-int. 85. Was it a cored casting?

Ans. No, it was not hollow, only the joint; could not cast it hollow; it was cast without core.

Cr.-int. 86. What do you mean by chasing?

Ans. By chasing, you take a punch and figure on the ornamental part of the fish. You take a punch and a hammer and drive figures what you want.

Cr.-int. 87. Do you mean that you made the ornamental parts of the fish, like scales and fins, with this punch and hammer?

Ans. Only what was needed; the pattern had all the impression in it.

Cr.-int. 88. Isn't the operation you have described the operation of making what is called matting on a pattern?

Ans. This was no matting. Matting is a different way to do it—a different thing altogether. Matting we have from the very finest to the very rough matting. We have matting where men can't see it with the naked eye, and then we have matting what is done in squares, and we have matting done in little bowls, I should say round bowls, and then we have matting with squares and little round holes in the middle of the squares, pretty nearly the same as what is on here, referring to Exhibit "G."

240 Cr.-int. 89. How did this chasing done with a round punch and hammer differ in character from the matting you have just described?

Ans. With a round punch you only can make a round hole or impression; for matting you have to use sometimes half a dozen or more punches.

Cr.-int. 90. Do I understand you that by the use of the round punch and hammer you produced the designs indicated in the pattern, on the surface of the dolphin, in your casting, in a series of minute round holes?

Ans. I have not said that I did use a round punch on the dolphin; well, I used what I should call a half-round punch.

Cr.-int. 91. Do you think it is practicable to chase cast-iron in the way you have described?

Ans. Surely.

Cr.-int. 92. How did you clean the surface of the dolphin?

Ans. With a wire brush.

Cr.-int. 93. What kind of oil did you put on and how did you put it on?

Ans. It was linseed oil, put on with a brush, such as is used by painters.

Cr.-int. 94. Was it common raw linseed oil which you used?

Ans. I believe it was.

Cr.-int. 95. Give the particulars of the way you heated it, where, how, and how long.

Ans. I done it in the factory, up in New Britain, of Peck & Walter, in the west end building; that was a two-story building, and in the second story we done the finishing, filing, burnishing, putting things together, and riveting, and on the first floor there was a drop press and a blacksmith's forge, where we done our forging, and there I done the heating for bronzing; I can't positively say how much time it took, but I had it in the tongs, or rather on the iron laying over the fire, till I thought it was good enough; I could not get away in that time when I had it over the fire, but I can't tell you exactly the time which it took; it may be that it took me an hour or less or more.

Cr.-int. 96. When complete did the surface of your dolphin have a bronze color, like "Art Castings Exhibits No. 2 and No. 1?"

241 Ans. It had the head part of the fish like the exhibits; the rest was darker.

Cr.-int. 97. Locate precisely the kiln referred to in your answer to interrogatory 18?

Ans. The yard kiln was on the eastern side of the main building; and what I call the main building was the one the office was in and the packing and finishing department. From this building, I suppose, the japanning kiln was about 60 to 75 feet from this main building.

Cr.-int. 98. Did the yard kiln adjoin any building?

Ans. It did, as far as I remember. There was a shed next to it, where the soldering was done; and next to that was a charcoal house; and then next to that was the privy.

Cr.-int. 99. Was this kiln standing when Sargent removed to New Haven?

Ans. I believe it was.

Cr.-int. 100. Is it standing now?

Ans. I don't know.

Cr.-int. 101. Was this yard kiln used by Sargent up to the time he came to New Haven?

Ans. I don't know exactly. It was used by Mr. Sargent, but whether they used it at that time, I can't tell you that.

Cr.-int. 102. What kind of work did they do in the yard kiln?

Ans. All kind of japanning.

Cr.-int. 103. Who had charge of the japanning? Name all the persons who had charge of the japanning that was done in that yard kiln.

Ans. I don't know. There was one named Lynch; I don't know if he had charge of the japanning in the yard kiln or not. He used to have charge of the japanning in the other shop before we moved down. The one that had charge after him I don't know. They had several men to work, and the one that I do know was the colored man, Lumady, but I don't know when he came to work and had charge over the japanning. The next man that I know was George Gebhardt; he began to make sewing machines, so he had to japan too. I believe he done some in the yard kiln.

Cr.-int. 104. Who worked for Sargent last—Lumady or Gebhardt.

242 Lumady began to work when Gebhardt was going, if I am right in my remembrance.

Cr.-int. 105. Were there any changes in the building at Peck & Walter's between 1857, when you returned, and 1864?

Ans. A good deal. They built a new engine-house and a new chimney; built an addition, a brick building, next to the brass foundry. They made some alteration, I don't know what it was, to the rolling rooms—the middle building standing in the yard—built a bridge from the main building to this building. That is all what I remember at present.

Cr.-int. 106. Describe the condition of the brass foundry before the addition referred to was built.

Ans. It was a building that run from east to west, and we had to go two steps down to get into the foundry from the yard. The first, when you come in from the yard near the gate, there was the core-room; there was another door on the east side of the foundry building where the pickling was done. When you come in on the west end of the building there was a place where they keep the coal fire, what was feeded with coal from the foundry building, what they call the fire-place for the kiln.

Cr.-int. 107. Was there a door in the end of the brass foundry building toward Elm street?

Ans. I never have seen a door there, if you mean the west end of the building.

Cr.-int. 108. What was there in the west end of the brass foundry building, nearest Elm street, before the brick addition referred to in answer to cross-interrogatory 105 was put up?

Ans. There was a wooden building there.

Cr.-int. 109. To what use was the extreme west end of the brass foundry put; what did it contain?

Ans. It was used for making cores and heating the kilns.

Cr.-int. 110. What kilns?

Ans. A kiln was in the wooden building, or what belonged to the wooden building. I never had seen the inside of that kiln, and could not say whether the kiln was in the foundry building or in the wooden building, but there was no entrance from the foundry to that kiln, only to the fire-place.

Cr.-int. 111. Are you prepared to state on oath that you remember a kiln in the end of the brass foundry nearest Elm street, or

243 in a wooden building adjoining that foundry, before the brick

addition was erected referred to in your answer to cross-interrogatory 105?

Ans. I am sure they had fire, and cannot see what they had fire there for unless to heat it. I never was inside the kiln. I remember I have often seen the men putting coal on the fire.

Cr.-int. 112. Do I understand, then, that you are not prepared to swear that you remember a kiln in or near the end of the brass foundry referred to, but only a fire in the west end of the foundry, into which you have seen men putting coal?

Ans. I remember two fires there; one was a furnace for baking cores and the other, they always said, was the fire to heat the kiln, and Mr. George Gebhardt's working men they were attending to that fire only; the other fire was attended to by the core-maker.

Cr.-int. 113. Where was the fire attended to by Gebhardt's men?

Ans. Right where you opened the door you could see right to the fire.

Cr.-int. 114. Which end of the foundry building?

Ans. The west end of the foundry.

Cr.-int. 115. Did you work in the brass foundry building commonly?

Ans. I sometimes had business there to look after the castings which I needed, or to give orders for what I wanted.

Cr.-int. 116. Where is Gebhardt? When did you see him last?

Ans. As much as I know he is in Montreal, Canada. I saw him last, it may be, ten or twelve years ago.

Cr.-int. 117. Have you seen or heard from Gebhardt since you saw him twelve years ago?

Ans. I heard from him, but did not see him. He got a brother here.

Cr.-int. 118. When did you hear from him last?

Ans. Maybe about a month or two that his brother spoke about him to me.

Cr.-int. 119. What is his brother's name and address?

Ans. Fred. Gebhardt; he has a middle name, which I have forgotten. He lives here in New Haven; he lived in St. John street two years ago; I can't tell you where he lives now.

244 Cr.-int. 120. Did you ever see any kiln in or near the west end of the brass foundry before the addition referred to in your 105 answer was put up?

Ans. I did not see any kiln till the new building was put up, but there was a kiln, because they done all this ornamental work there; but my business did not brought me there. I had nothing to do in that line.

Cr.-int. 121. If there was a kiln you never saw it then?

Ans. I never saw the inside, but I saw the door to the kiln.

Cr.-int. 122. Where did the door of the kiln open?

Ans. In the wooden building towards the west.

Cr.-int. 123. Did Gebhardt work for Sargent after the brick building, next the brass foundry, referred to in your 105 answer, was put up?

Ans. He was not, to my knowledge, living in New Britain at that time.

Cr.-int. 124. Was there more than one kiln opening out into the wooden building where Gebhardt worked? If so, what were their relative positions—side by side or one over the other?

Ans. I don't remember more than one; I think there was only one.

Cr.-int. 125. How were the kilns in the brick addition referred to heated—by coal fire or otherwise?

Ans. They were heated by steam.

Cr.-int. 126. Do you remember when this addition was put up?

Ans. I should think it was in 1859.

Cr.-int. 127. When did you first see Exhibits "1 and 2, Art Castings?"

Ans. It may be about two months ago.

Cr.-int. 128. Where did you see them?

Ans. In our factory by F. W. Brocksieper.

Cr.-int. 129. Did you see Mr. Brocksieper make those exhibits—finish them in that way?

Ans. I did see him.

Cr.-int. 130. You are familiar with the process of manufacturing the finish known as Berlin bronze as practised by Sargent?

245 Ans. To some extent; not exactly the whole.

Cr.-int. 131. Describe the process.

Ans. Take the work in baskets, put them in some kind of oily stuff and then bake them dry, so that the ground color is dark, pretty nearly like japanning; then the edges and figures get polished, and after polishing they brush it over again with some oily stuff and bake it again till it looks bronzy or brown. That is what we call now Berlin bronze.

Hearing adjourned until Wednesday, December 8th, 1880, at 9.30 a. m.

NEW HAVEN, *Dec. 8th*, 1880—9.30 a. m.

Examination resumed. Parties present as before.

Cr.-int. 133. Are you prepared to answer cross-interrogatory 70?

Ans. When we come to New Haven we could not do, and did not do, to my recollection, any Berlin bronze; neither antique bronze. I think we did not do any since Brocksieper left the company in New Britain; at least I didn't see any doing or finishing. As far as I know there was no place where they could bake it, because our kilns were heated by steam, if I remember right. I mean for a year after they came to New Haven, or perhaps two years. I don't know when they started to make it, but when they started to make the Berlin bronze again, or antique bronze, they built a fire-place on the water-side, south side of the road, in the wooden building—old building—they had standing there. If I remember right, with all this kind of work I had nothing to do with. It is only by passing by and seeing what they were doing.

Cr.-int. 134. Sargent began to make the finish known as Berlin bronze here in New Haven, after he had been here about two years, and after he had built a fire-heated kiln; am I right?

Ans. I guess you are.

246 Cross-int. 135. Were goods finished by Mr. Brockseiper, and resembling in character and appearance and finish "Art Castings Nos. 1 and 2," made and sold by Sargent's predecessors in New Britain; if so, under what name as to finish and what articles?

Ans. I cannot tell what they done with the goods what was made. I can recollect that Mr. Brocksieper finished coat and hat hooks Nos. 5 and 6 and single and double jamb hooks that way, but we called this bronzing among the workingmen "antique bronze." Under what name the company sold it I do not know, or if they sold it at all. I don't know anything about it, because I have nothing to do with the selling part or sending away goods.

Cr.-int. 136. In what respect do the Defendants' Exhibits "H," "G," and "H²" resemble the coat and hat hooks which you have testified Brocksieper showed you at New Britain?

Ans. As far as my recollection goes, they looked like these samples standing here.

Cr.-int. 137. Were those coat and hat hooks shown you by Brocksieper polished on their salient faces with either an emery belt or wheel?

Ans. I have not seen him finishing these coat and hat hooks, only he showed them to me in a box when they were finished.

Cr.-int. 138. Was it your custom to finish any ornamental work of this character on emery belts or wheels at Sargent's, at New Britain?

Ans. Not to my recollection. We finished them, as far as I know, with wire brush and sand-paper, excepting the rough—what was filed or ground off on an emery wheel.

Cr.-int. 139. When Mr. Gebhardt came to work for the Peck & Walter Manufacturing Company in what building did he work first?

Ans. As far as I know, he worked in the wooden building next to the brass foundry.

Cr.-int. 140. Is it not a fact that said wooden building was situated on another side of the street when Gebhard commenced work there for the Peck & Walter Company?

Ans. I don't remember; it may be, because I remember they were moving a wooden building, but don't remember where
247 it stood, but only remember when it was on the west end of the brass foundry.

Cr.-int. 141. Was the kiln that you have testified to as opening into the wooden building, as used by Gebhardt, built before or after the wooden building was moved?

Ans. As far as I know, it was built when the wooden building was standing there.

Cr.-int. 142. Do you remember anything about its being built, so that you can testify on oath that such a kiln was built to your recollection?

Ans. I don't remember when it was built, but I know it was built.

Cr.-int. 143. Who built it—what workmen?

Ans. I don't know.

Cr.-int. 144. Give its dimensions, as nearly as you can.

Ans. I cannot; I never was inside the kiln to my knowledge.

Cr.-int. 145. Was the kiln in the wooden building or in the west end of the brass foundry?

Ans. As far as my recollection goes, my impression is that it was in the brass foundry.

Cr.-int. 146. After Gebhardt came to work for Peck & Walter Manufacturing Company, did they continue to use the yard kiln before described?

Ans. They did use the yard kiln when Gebhardt was there, but how long I can't tell.

Cr.-int. 147. What is your best recollection as to the time the yard kiln ceased to be used?

Ans. It was used in 1857, but when they stopped using that kiln I don't know.

Cr.-int. 148. Where is the watch stand that you have described as made for you, in answer to interrogatory 33? What did you do with it?

Ans. I can't tell where it is. When I moved away from Brocksieper's, where I was boarding, I left it there.

Cr.-int. 149. Do I understand you that "Art Castings Nos. 1 and 2" correctly represent, in color and finish, this watch stand made as described in the answer to interrogatory 33?

Ans. As far as I remember, I call it the same finish. Different patterns make different appearance as to looks, but every one
248 could see that it was finished the same way as "Art Castings Nos. 1 and 2."

Cr.-int. 150. What was the day and the month and the year if you remember, in which this watch stand was made for you by Brocksieper?

Ans. I cannot remember the day or the month, neither exactly the year; it must be, to my recollection, in the year 1852; possibly it was 1853.

Cr.-int. 151. Did Brocksieper come in 1858 to show you a box of goods finished liked those you have testified to as made in 1853 as novelties?

Ans. He showed me a box in that year of finished goods—coat and hat hooks—and asked me how I liked them. I told him I thought they looked pretty, and done the same way as he done the horse and the pictures. We used to call Art Castings No. 1 and 2 pictures. Brocksieper told me (objected to as incompetent) they were done in the same way.

Cr.-int. 152. Do you own any of the stock in Sargent & Co., the defendant corporation?

Ans. I do not.

Cr.-int. 153. In your answer to cross-interrogatory 93, you say "oil, put on with a brush such as used by painters." Please describe that brush particularly; was it a hog's-hair brush, camel's-

hair brush, or what kind of a brush was it; and as to size, was it a sash tool or an ordinary-sized paint brush?

Ans. I don't remember the particulars about the brush.

Cr.-int. 154. Was it a hog's-hair or camel's-hair brush?

Ans. I don't know the difference; I can't tell; I don't remember what kind of a brush it was, whether hog's-hair or camel's-hair.

Cr.-int. 155. Will you produce a brush such as you used?

Ans. I don't remember the brush in particular. It was a brush what they was using in the factory somewhere.

Cr.-int. 156. For what kind of work were they using it in the factory?

Ans. I don't know.

Cr.-int. 157. Was it a flat or a round brush?

Ans. I don't remember.

249 Cr.-int. 158. Will you take a rough casting and prepare from it, following strictly the account given in your answers, a piece of goods like "Art Exhibits 1 and 2" in appearance, color, and finish in our presence? By rough casting I mean such a casting, in character, as the one from which you testified you made the dolphin, without regard to particular pattern?

Ans. We never used rough castings for such kind of work; we always take the best castings, and I am willing, any time, in your presence, to finish it up like "Art Castings Nos. 1 and 2."

Cr.-int. 159. Will you take a casting just from the mould, and of the general character of those castings from which exhibits "Art Castings Nos. 1 and 2" were made, and, by following strictly the accounts given in your answers, prepare a piece of goods like "Art Castings Nos. 1 and 2" in color, finish, and appearance in our presence?

Ans. I believe I can; I will do it.

Cr.-int. 160. Will you do it now?

(Counsel for the defendant, at this point, advised the complainant's counsel that there are no castings in existence, as they are advised, of the character of those like Exhibits "Art Castings Nos. 1 and 2," but they are also advised that there are one or more patterns from which such castings can be made, and that the defendants will take immediate measures to have castings made therefrom, as called for in cross-interrogatory 159.)

(Counsel for complainant states that by the phrase "general character of those castings from which it exhibits 'Art Castings Nos. 1 and 2' were made," used in cross-interrogatory 159, he means castings of the same fineness and texture of surface, without regard to configuration, as the exhibits referred to had when fresh from the mould, having the same general area of surface.)

250 (Counsel for defendants state that they are advised their clients have in their possession the original pattern, now more than 25 years old, from which Defendants' Exhibit "Art Casting No. 1" was cast, and they therefore advised the witness to defer complying with the request contained in the cross-interrogatory 159 until a casting can be made from the same pattern.)

Ans. I cannot do it now; I haven't anything to do it with; I have neither castings nor the tools to it now.

Cr.-int. 161. Will you take a casting just from the mould, and of the general character from which Exhibits "Art Castings Nos. 1 and 2" were made, which we will agree to produce, and, by following strictly the accounts given in your answers, prepare a piece of goods like "Art Castings Nos. 1 and 2" in color, finish, and appearance in our presence? We do not care for exactly the same pattern as that of Exhibits "Art Castings Nos. 1 and 2."

Ans. I am ready to do it.

Cr.-int. 162. Will you do it to-day?

Ans. I am ready as soon as I get the castings and the tools.

Adjourned until 2 o'clock p. m.

Hearing further adjourned until Thursday, Dec. 9th, 1880, at 10 o'clock a. m., at Sargent & Co.'s works, for the purpose of seeing the witness perform the operation according to the method to which he has testified.

THURSDAY, *Dec. 9th*, 1880—10 o'clock a. m.

251 Met at Sargent & Co.'s works for the purpose above specified. Parties present as before.

The witness proceeding to operate upon castings then in his possession was called upon by counsel for complainant to produce a casting just from the mould in accordance with the request in cross-interrogatory 161. Castings then in his possession and which he was proceeding to operate upon objected to, because they had been tumbled.

Complainant's counsel then offered two castings fresh from the mould, and requested the witness to produce, by following strictly the process mentioned by him, a piece of goods like Exhibits "Art Castings Nos. 1. and 2" in our presence; which the witness refused to do.

Counsel for the defendants states that they have no other castings and that these are in the condition in which they came from the foundry—that is, that they have been tumbled in the usual manner; that they would have been glad if the tumbling process could be witnessed by all the parties, but that it was understood that castings as they came from the foundry were the ones required.

Complainant's counsel protested and withdrew.

The witness then proceeded with his work.

Hearing adjourned until 2 p. m., at 179 Church street.

Examination resumed, 2 o'clock p. m.

(Complainant's counsel states that he has obtained the use of a forge fire, and has procured a wire brush, common painter's brush, and common linseed oil, as described by the witness, together with the castings already offered, and he declines to proceed with the cross-ex-

amination until the witness performs the experiment, as
252 agreed in his answers to cross-interrogatory 159 and cross-interrogatory 161 and cross-interrogatory 162, with the castings offered or with other castings of the same general character as those from which Exhibits "Art Castings Nos. 1 and 2" were made, fresh from the mould.)

(Counsel for defendants suggests that perhaps the witness is as good a judge of the character of the castings formerly used by him as counsel for the complainant in this case, and states that the witness, after the withdrawal of counsel for complainant and his client, this morning, proceeded to produce the articles requested from castings which, counsel is advised, are of the same character as those formerly used by the witness, and that witness is present, ready to answer any questions regarding the same which counsel for complainant may propound. Counsel for defendants further states that the same castings were used which were seen by counsel for complainant before withdrawal.)

(Complainant's counsel calls upon counsel for defendants to produce such a casting.)

(Counsel for defendants state that they understand that the article is in the possession of the witness, and that he is ready to produce the same on cross-examination resumed.)

(The complainant's counsel declines to proceed with the cross-examination except as before stated.)

Hearing adjourned until Dec. 28th, 1880, at half-past nine o'clock a. m.

253 NEW HAVEN, *Dec.* 28, 1880—9.30 a. m.

Examination resumed. Parties present as before.

Redirect examination by Mr. MITCHELL:

Redirect int. 163. State whether you prepared a piece of goods like "Art Exhibits 1 and 2" at Sargent's works on the 9th day of December, 1880, at the time referred to on page 25 of defendants' record; if yea, produce the same.

Ans. Well, I did, and I brought it here, and this is the one.

(Defendants' counsel offers the casting in evidence, and it is marked Defendants' Exhibit "Ruff Art Exhibit," J. B. M., Special Examiner.)

Redirect int. 164. Have you a casting showing the condition of the casting from which "Ruff Art Exhibit" was prepared. If yea, produce it.

Ans. I have, and here it is.

(Defendants' counsel lays the casting in evidence and it is marked Defendants' Exhibit "Ruff Art Exhibit Casting," J. B. M., Special Examiner.)

Redirect int. 165. Have you a casting showing the condition of

the casting from which "Ruff Art Exhibit" was prepared; when such casting came from the sand If so, produce it.

Ans. Here it is.

(Casting put in evidence and is marked Defendants' Exhibit "Ruff Art Exhibit Casting from Mould," J. B. M., Special Examiner.)

Redirect int. 166. Please state whether Complainants' Exhibit "Rough Castings" is a fair representation of the casting from which you prepared the "Dolphin," as described in your testimony.

Ans. It is not like the castings which we used.

254 Recross-examined by Mr. LOOMIS:

Recross-int. 167. How was the sand and scale removed from "Ruff Art Exhibit?"

Ans. I have not seen them remove anything, only as they brought it up, as you have seen it yourself.

Recross-int. 168. I understand you, then, that the sand and scale were removed from "Ruff Art Exhibit" before you began to operate upon it?

Ans. I wish you would explain what you understand by scale, so I can answer accordingly.

Recross-int. 169. Had "Ruff Art Exhibit" been tumbled before you began to work upon it?

Ans. I have not seen it done, but I believe it was.

Recross-int. 170. Had "Ruff Art Exhibit" been smoothed on an emery-wheel before you began to work on it?

Ans. It was not.

Recross-int. 171. What instruments did you use upon "Ruff Art Exhibit" before you applied oil?

Ans. I brought all the instruments with me that time, and I guess they are here in the office, except old paper to clean off the dust.

Recross-int. 172. Enumerate them, please.

Ans. Files and emery-cloth, wire brushes or brooms, leather for rubbing off, polishing leather—that is all.

Redirect examination by Mr. BEACH:

Redirect int. 173. Please look at the articles now shown you and say whether they are the tools enumerated by you in answer to the last cross-interrogatory.

Ans. They are all the tools, except a larger file for filing off gates.

(Defendants' counsel offers the tools in evidence, and they are marked Defendants' Exhibit "Ruff Tools 1, 2, 3, 4, 5." J. B. M., Special Examiner.)

255 Recross-examined by Mr. LOOMIS:

Recross-int. 174. For what did you use "Ruff tool" No. 4?

Ans. For grate over the fire. When the castings was placed on.

Recross-int. 175. Was it "Ruff tool, No. 4," laid on the fire or held in the tongs while using it?

Ans. Part of the time it was laid on the fire and part [of] it was held in the tongs over the fire.

Recross-int. 176. Which did you do first—hold it in the tongs or lay it on the fire, and why did you change?

Ans. I laid it on the fire without a tong.

Recross-int. 177. How long did it remain on the fire?

Ans. I took it off once in a while to look at the work and put it on the fire again until I was satisfied the bronzing was right.

Recross-int. 178 How many minutes did that casting remain over the fire before it was finished?

Ans. I believe from fifteen to twenty minutes.

Recross-int. 179. Was it a bright, clear fire on the forge?

Ans. It was not.

Recross-int. 180. Did you use the forge-blower during the operation?

Ans. I did, but not during the whole process.

JOHN RUFF.

JOSEPH J. RUFF, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by CHARLES E. MITCHELL, Esq., of counsel for the defendants, answered as follows:

Int. 1. What is your name, age, residence and occupation?

Ans. Joseph J. Ruff; age, 46; residence, New Haven; occupation, brass finishing.

Int. 2. Are you a brother of John Ruff, whose deposition has been taken in this case?

Ans. Yes, sir.

256 Int. 3. If you were not born in this country state when you came to this country.

Ans. I came to this country in 1852; in April.

Int. 4. Where did you first go and into whose employment?

Ans. I first went to New Britain and went into the employment of Peck & Walter.

Int. 5. When did you begin to work for Peck & Walter and what did you do?

Ans. Early in May, 1852; working on brass-finishing.

Int. 6. Was your brother, John Ruff, at work for Peck & Walter at that time?

Ans. He was.

Int. 7. What business did Peck & Walter then carry on?

Ans. General hardware.

Int. 8. State whether Peck & Walter changed the locality of their business in New Britain, and, if so, when.

Ans. Yes; they changed. First, they was in a wooden building, in a street I forget; then they moved further south, on same street, in a brick building, in 1853.

Int. 9. Do you remember whether the name of the concern was changed at or about that time?

Ans. Yes; it was. The changed name was after that Peck & Walter M'f'g Co.

Int. 10. Was there a kiln on the premises to which Peck & Walter M'f'g Co. removed?

Ans. Yes; there was a kiln in the yard, in a frame building.

Int. 11. Was that kiln used for baking purposes?

Ans. Yes, sir; it was; used for japan—baking japanned goods.

Int. 12. State whether you at any time worked at japanning for Peck & Walter M'f'g Co.

Ans. Yes; during the year 1857 we did not have anything to do at our brass-finishing. I was engaged by a man by the name of Gebhardt in japanning, ornamenting, and burnishing sewing machines.

Int. 13. At what time in 1857, as nearly as you can state, did you begin to work as stated in your last answer?

Ans. As far as I recollect, it was in October.

Int. 14. How long did you continue to work under Gebhardt at japanning, ornamenting, and varnishing sewing machines?

257 Ans. I think about four or five months when we started up again in our work of brass-finishing.

Int. 15. Where was the kiln located in which you worked under Gebhardt?

Ans. The kiln was in the brass foundry building, but the entrance to it was in the wooden building that japanning and ornamenting was done in.

Int. 16. Where was the entrance to the furnace that supplied heat to the kiln?

Ans. Brass foundry building.

Int. 17. How was the kiln heated?

Ans. With wood and coal.

Int. 18. What kind of coal?

Ans. Hard coal, such as is generally used.

Int. 19. Do you remember Mr. Gebhardt's whole name?

Ans. George. I don't know if he has a middle name. I think he has "W" in the middle name, but I am not sure.

Int. 20. Do you remember whether thermometers were used in connection with that kiln?

Ans. Yes, there was one.

Int. 21. Do you know where the kiln or its appointments were obtained?

Ans. Well, as far as I recollect, it was bought down in Forrestville, of a man named Otis.

(Answer objected to, as the witness could not testify of his own knowledge.)

Int. 22. At what work did you go after ceasing to work at the kiln, and how long did you remain at Peck & Walter M'f'g Co., or their successors, at such work?

Recross-int. 175. Was it "Ruff tool, No. 4," laid on the fire or held in the tongs while using it?

Ans. Part of the time it was laid on the fire and part [of] it was held in the tongs over the fire.

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Int. 6. Was your brother, John Ruff, at work for Peck & Walter at that time?

Ans. He was.

Int. 7. What business did Peck & Walter then carry on?

Ans. General hardware.

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Ans. Well, as far as I recollect, it was bought down in Forrestville, of a man named Otis.

(Answer objected to, as the witness could not testify of his own knowledge.)

Int. 22. At what work did you go after ceasing to work at the kiln, and how long did you remain at Peck & Walter M'f'g Co., or their successors, at such work?

Ans. I went to work at my old trade of brass-finishing and stayed there until the war broke out in 1861.

Int. 23. What did you do then?

Ans. I enlisted in First Connecticut Volunteers, three months, served my time out, and, after I came back, enlisted in the Sixth Connecticut, got discharged on 11th Sept., 1864, came here to New Haven and went into the employ of Mr. Sargent, in hardware business, and I have been in his employ ever since.

Int. 24. State whether you at any time saw any articles of manufacture colored by Mr. Brocksieper in imitation of bronze; if so, state when and name the articles.

258 Ans. Yes; I saw them in 1853; saw things what Mr. Brocksieper said he done; saw Nos. 5 and 6 coat and hat hooks, double and single jamb hooks, picture, or rather looking-glass, frames, I should say.

(Objected to as before.)

Int. 25. Compare Defendants' Exhibits H, H², and G with the articles produced by Mr. Brocksieper in 1858 in appearance, color, and finish.

Ans. As I recollect, they look similar, like them; it is a long time. Whether they had the exact color like that I can't say positively, but I recollect that he made them.

Int. 26. Were the articles produced by Brocksieper, as you have testified, of a bronze color?

Ans. They was.

Int. 27. Do you know how they were made except as he told you?

Ans. No, I don't; I only know what he told me the same time when he showed them to me.

Int. 28. Are Exhibits H, H², and G of the same pattern as those ornamented in imitation of bronze by Brocksieper?

Ans. They are.

Int. 29. Were those articles made by Brocksieper made for sale in the usual course of business, as you understand?

Ans. As far as I know they were.

Int. 30. You had nothing to do with the selling department, I suppose?

Ans. No, sir.

Cross-examined by Mr. LOOMIS:

Cr.-int. 31. What time did Gebhardt begin to work for Peck & Walter M'f'g Co., or their predecessors?

Ans. I think early in spring, 1857.

Cr.-int. 32. Where did he work when he first began to work for them; in what building?

Ans. He commenced to work in that wooden building close up to the brass foundry and south of the main building.

Cr.-int. 33. Do you remember whether that wooden build-

259 ing stood in the place you have described when the Peck & Walter M'f'g Co. first occupied the premises?

Ans. No; it was not there then; it was moved there.

Cr.-int. 34. You say it was moved there before Gebhardt began work in it?

Ans. Yes; it was moved there shortly before.

Cr.-int. 35. What was its original position before it was moved to the premises?

Ans. I can't tell for sure; I think it was an old shed or something that stood across the street.

Cr.-int. 36. Was the kiln you have described in it before it was moved?

Ans. No, sir.

Cr.-int. 37. Describe the kiln more particularly; what was it built of? I mean the kiln in the wooden building used by Gebhardt.

Ans. As far as I recollect the kiln was not in the wooden building; the kiln was in the brass foundry, but the entrance to the kiln was in the wooden building.

Cr.-int. 38. What were the dimensions of the kiln?

Ans. I couldn't very well tell; if I was to tell it would be guess work; well, the kiln was about six feet in the brass foundry building; it was not a very large one.

Cr.-int. 39. What do you mean by "six feet in the brass foundry?"

Ans. Well, it extended six feet from the wall in the brass foundry, one end.

Cr.-int. 40. How wide was it?

Ans I judge about four feet.

Cr.-int. 41. How high was it?

Ans. Well, I can't possibly tell that; it was pretty high; you went in on the level ground in the wooden building and you had to go up two steps in the wooden building, and in the foundry you had to go down pretty nearly two steps; that makes a difference of the level of the foundry and the level of the wooden building of several feet.

Cr.-int. 42. What was the inside height of the kiln from top to bottom inside?

Ans. About five or six feet.

260 Cr.-int. 43. Was there anything over it or under it; and, if so, what? I mean the Gebhardt kiln.

Ans. I can't tell positively what was over it, but under it I know there was a furnace.

Cr.-int. 44. Was this kiln built before the wooden building was moved up to the end of the brass foundry?

Ans. No; it was not. It was built at the same time the wooden building was there.

Cr.-int. 45. What was it built of; what material?

Ans. I think it was brick.

Cr.-int. 46. Was it moved bodily from Forrestville, where it was purchased of Otis, as you said?

Ans. Well, I think so, but I am not sure of it. The only thing I heard was that it was brought there at the same time.

Cr.-int. 47. Do you remember the fact of its being put in the end of the brass foundry?

Ans. I don't remember exactly when it was in, but I know it was in.

Cr.-int. 48. Were you working for Peck & Walter M'f'g Co. at the time and did you know when it was put in?

Ans. When, I can't tell exactly. First when Mr. Gebhardt came there he had to do his baking in the old kiln which was in the yard. He always had to carry the sewing machines from the wooden building back to that old kiln which was in the yard, and it was too much trouble for him. That is the reason he had applied for this kiln.

Cr.-int. 49. Of what material were the doors of this kiln, the Gebhardt kiln?

Ans. I think iron.

Cr.-int. 50. Of what was the floor?

Ans. The floor, as I recollect, was iron.

Cr.-int. 51. Was there more than one kiln in this place at the end of the brass foundry?

Ans. There was only one.

Cr.-int. 52. Who used the kiln besides Gebhardt?

Ans. Time I was working there Gebhardt alone used it.

Cr.-int. 53. Where was the japanning of the other hardware, besides sewing machines, done?

Ans. Time I was working there there was no other japan-
261 ning done. Everything was idle; but before and after that it was done in the kiln in the yard—the baking.

Cr.-int. 54. Who used the Gebhardt kiln at any time, except Gebhardt; I mean at any time while you were in the employment of Peck & Walter M'f'g Co.?

Ans. I can't tell if anybody else used it; time I was working there Gebhardt used it alone; it was only about five months; afterwards I never came down so as to know who worked there; it was out of my line.

Cr.-int. 55. Were articles in imitation of bronze made by the Peck & Walter M'f'g Co., while you were in their employ, in large quantities?

Ans. Well, there was; never saw large quantities; couple gross of those hooks I often saw in a box; can't say how many exactly.

Cr.-int. 56. Was an imitation of bronze produced by bronze powder on cast-iron by Peck & Walter M'f'g Co. while you were working for them?

Ans. There was.

Cr.-int. 57. Was this finish produced on castings of the same general pattern as Defendants' Exhibits H, H², and G?

Ans. Yes, they were made, some of them gold bronze, some copper bronze, and some of them green.

Cr.-int. 58. Was this done under the superintendence of Mr. Brocksieper?

Ans. Yes, it was.

Cr.-int. 59. Did Mr. Brocksieper continue to make this line of goods covered with powdered bronze up to the time you left?

Ans. He made it up to the year 1859, when Brocksieper left.

Cr.-int. 60. What names were applied to the various finishes in imitation of bronze made by the Peck & Walter M'f'g Co.?

Ans. I don't know. I forgot that. There was gold, copper, and green which they called powder bronze; then they had some what they called antique, but I don't recollect how it was made or how it did look.

Cr.-int. 61. What did you do when in the employ of Gebhardt?

Ans. I worked at japanning, ornamenting, and varnishing sewing machines.

262 Cr.-int. 62. What kind of ornamenting did you do personally?

Ans. Well, we made some sewing machines where there was pearl inlaid. I laid the pearl and then Mr. Gebhardt he done the ornamental painting with size and I gilded them.

Redirect examination by Mr. MITCHELL:

Redirect int. 63. Do you reremember what style of finish was called antique?

Ans. Well, it was a kind of dark brown color; can't describe it very well; has slipped my memory.

Redirect int. 64. And you do not associate it with any particular finish, if I understand you?

Ans. No; it was out of my line of business.

Recross-examination by Mr. LOOMIS:

Recross-int. 65. I understand you that antique bronze was one of the powder-finished bronzes?

Ans. It was not. We called power-finished bronze just the same what their color was—gold, red, and green.

JOSEPH J. RUFF.

263 F. W. BROCKSIEPER, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by John S. BEACH, Esq., of counsel for the defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. Frederick W. Brocksieper; age, I am going on to 54; residence, Montowese, North Haven; occupation, at present contractor at Sargent & Co.'s.

Int. 2. When did you come to the United States and from what country?

Ans. I came from Prussia in 1847.

Int. 3. Did you, prior to coming to the United States, have any knowledge or experience in the process of ornamenting iron by heat and oil? And, if so, state briefly what it was,

Ans. We made, at my father's manufactory of screws, we made imitations of steel screws, which were colored with oil in a pan, iron pan, perforated with holes top and bottom, with a handle on one

end of the pan with a wooden tip. The cover of the pan was with a hinge, so it could be shut and opened when desired. The screws were poured into the pan and some oil poured on the top of them; then the pan was held over a coal fire, after the gas was burned out, and by turning and shaking held there until the required color was gained, which was either blue or brown. I believe that is complete.

(Objected to as tending to show description of process performed in a foreign country.)

Int. 4. What kind of oil was used?

(Question objected to as tending to show process not material to the issue in the case.)

(Defendant's counsel say that they do not claim this testimony as admissible, except in connection with the subsequent knowledge and experience of the witness after his coming to the United States.)

Ans. We used rape-seed oil at that time.

Int. 5. What was the effect, if any, of this process upon the color of the metal itself?

264 Ans. The effect of the oil was to deepen the color of the oxidation of the metal.

(Same objection.)

Int. 6. What degree of heat was employed to produce that effect, as you understand?

(Same objection.)

Ans. At the time I did not know the heat what was required, but now I know that it requires from 400° to 500° Fahrenheit. We judged at that time only by the color of the material—by opening the lid.

Int. 7. Where were you first employed in the United States and for how long?

Ans. By Janes, Beebe & Co., New York; for one year.

Int. 8. What was the nature of your occupation there?

Ans. Modeller and pattern-maker, principally.

Int. 9. By whom were you next employed and for how long?

Ans. Next I was employed by Peck & Walter and their successors for about ten years, more or less.

Int. 10. Where was the business of Peck & Walter and their successors carried on?

Ans. In New Britain, Conn.

Int. 11. After you left the employment of Peck & Walter and their successors where did you go, and, if at any time you returned to the employment of them or their successors, when was it and how long did you remain?

Ans. In 1859, if I remember right. Between 1859 and 1860 I left the employment of the successors of Peck & Walter, which was Sar-

gent & Co., and started business for myself to manufacture coffin-trimmings. Before the war broke out, or just about that time, I removed my business to Montreal, Canada. In about five years from the time of leaving Sargent & Co. I returned to them to work.

Int. 12. And have you been in their employment ever since?

Ans. I have.

Int. 13. While you were employed by Peck & Walter and their successors at New Britain, between 1849 and 1859, what methods, if any, were employed in ornamenting iron in imitation of bronze by yourself, and state the methods in the order of time in which they were used and the articles on which the methods were employed?

265 Ans. Manufactured hat and coat hooks, jamb-hooks, cupboard-catches, sash-fasteners, picture-frames, looking-glass stands, and a variety of other fancy articles. We made coat and hat hooks and jamb-hooks the following different ways: One class was blacked with japan, after japanned, sized, and the high edges or prominent edges bronzed with bronze powder. Another kind of finish was the sizing the clean castings, covering them with a green bronze, and size them over again after dried, and bronzed the prominent parts with copper or gold bronze. This was called French bronze, and the former was called black and gold. Then we made another variety, sized the castings, and covered them all over with bronze called gold bronze. Then we made another variety, which we covered with size, baked over a forge to begin with, and afterwards in aftertimes in a kiln until they had a brown color. We made two varieties of these goods. The one, after baked, was sized again and the prominent parts bronzed with copper or gold bronze; the other one was shipped in the packing room, after baking, without any bronze powder on, and, if I remember right, the one with the bronze powder on was called dark and gold bronze, and those without the powder was called antique bronze.

Int. 14. Please look at the exhibits now shown you, marked Defendants' Exhibits H, H², and G, and say whether or not they correctly represent hat-hooks made by you during the period you have named, in their appearance, color, and ornamentation.

(Question objected to as leading.)

Ans. They are a correct copy of those that I made at that time, in appearance and finish.

Int. 15. You say that these articles, after being covered with size, were baked over a forge to begin with and afterwards in aftertimes in a kiln until they had a brown color. Restricting your answer to the period when they were baked in a kiln, will you please describe in detail from the beginning to the end the process which you used?

Ans. From the year 1849, or about that time, until about 1856 or 1857 all articles bronzed with oil or size I baked over a forge; after that time we had a kiln fixed in such manner by Mr.

266 Bradford that we could bake those articles in the kiln, and a few of those articles were baked in that remodelled kiln of

Mr. Bradford's. In 1857, or about that time, we had a kiln built under the direction of the boss painter, Mr. Gebhardt, with particular instruction for high heat. All those goods from that time, after the Gebhardt kiln was in working order, were baked in that kiln, with the exception of a few samples and single articles, which were done over a forge.

We had the castings cast with a facing, so as to come out of the sand very nearly entirely free of sand, then those castings rolled, drilled, and countersunk, the highest parts or the prominent parts of the ornaments brightened with sand-paper or emery-paper, brushed clean from dust, then sized and baked. In order to handle them easy, those hooks, we had them fastened on a block with a spring, and sized them in quantities as they were ordered, let them stand long enough so that the size would not stick to the fingers, then we put then in pans or on hooks, and put them in the kiln to bake.

Int. 16. You say you sized these castings after they were brightened. Please explain what you mean by that term.

Ans. Sizing was covering the castings with a mixture of equal parts turpentine, copal varnish, and linseed oil.

Int. 17. How was the mixture applied to the casting?

Ans. With a stiff, fine brush, very thin.

Int. 18. Were there any means of determining, when you began to use the Gebhardt kiln, the degree of heat to which the baking was carried, and, if so, what means, and how high was the heat carried up?

Ans. We had a thermometer fastened inside the kiln and covered with a glass, so we could read the degrees from the outside, and employed, if I am correct, 420° Fahr.

Int. 19. What was your object in carrying the heat up to so high a degree as that?

Ans. We had to oxidize the metal to get the desired color, and it requires that amount of heat to oxidize the iron.

Int. 20. What do you mean by oxidizing the surface of the iron?

Ans. To give the iron a straw color, or a blue color, which is called oxidizing it.

267 Int. 21. Which required the highest degree of heat on the unoiled surface, that which produced the straw color or the blue color?

Ans. The blue color.

Int. 22. Have you any recollection, while you were in the employment of Peck & Walter, or their successors, at New Britain, of receiving from the old country a picture, and, if so, when was it and whose was it?

Ans. I received my father's picture, a photograph on glass, between 1853 and 1854, about that time.

Int. 23. Did you make a frame for that picture?

Ans. I did.

Int. 24. Will you please describe in detail the process you used for ornamenting that frame, if it was ornamented.

Ans. It was a cast-iron frame which I had cast smooth and clean by the process of facing. I then cleaned the casting and polished

the high edges or prominent parts with sand-paper; then I sized it with the mixture I have described. I put on the sizing with a stiff brush, then baked it over a blacksmith's forge until it attained the color desired, then I sized it over again, let it dry sufficiently by the air, and covered the prominent parts with copper bronze.

Int. 25. You say you made the frame for that picture; was it used for that purpose, and, if so, for what length of time?

Ans. After the frame was made I fastened the picture of my father in it and kept it in my parlor room suspended on the wall for a period of about ten years.

Int. 26. Is that frame still in existence?

Ans. It is.

Int. 27. If you can please produce it?

Ans. There is the frame.

(Defendants' counsel puts the frame in evidence, and it is marked Defendants' Exhibit "Brocksieper Picture Frame," J. B. M., Special Examiner.)

Int. 28. Please look at the exhibits now shown you, marked Defendants' Exhibits "I," "I²," and say, if you can, by whom they were ornamented so as to have the appearance which they now present.

268 Ans. They were ornamented by myself.

(Defendants' counsel puts the exhibits in evidence, and they are marked Defendants' Exhibits "I," "I²," J. B. M., Special Examiner.)

Int. 29. What are the articles called to which your attention has just been directed?

Ans. Looking-glass frame, or toilet frame.

Int. 30. What was your first knowledge of looking-glass frames, or toilet frames, ornamented like those exhibits; I mean when was it done, where was it done, and by whom?

Ans. In about 1856 or 1857, when Mr. Sargent took charge of the Peck & Walter Manufacturing Co., I myself made the first toilet frames, or looking-glass frames, with stands, in the company's factory.

Int. 31. What was the process used by you in the ornamenting of those articles as compared with the process you have already described as being used in ornamenting picture frames?

Ans. The same as the picture frames, with the exception they was not copper bronzed and sized after they was baked.

Int. 32. To what extent, prior to your leaving the employment of the company in 1859, had you used this process for ornamenting looking-glass frames and similar articles?

Ans. Of the looking-glass frames of one pattern, which I have not been able to find since, I made a hundred; of those like exhibit here not a great many; made some coat and hat hooks, jamb-hooks; I made several batches of from twelve to twenty-four dozen at a time. Of the Brocksieper patent sash-fasteners I don't exactly know how

many—a considerable number. Of the cupboard-catches several batches, and other ornamented articles only a few, with the exception of one article—a horse, which was used for a saddler's sign, we made a considerable many.

Int. 33. Do you know what became of the looking-glass frames mentioned in your last answer that you made during that period?

Ans. I sold them to the shop hands and acquaintances in New Britain, because the company would not accept of them, being out of the line of their business, and they was left in my hands.

269 Int. 34. Do you know what became of the coat and hat hooks and jamb-hooks which you made during that period in the way you have described and the sash-fasteners and cupboard-catches?

Ans. They was delivered to the packing-room and packed the same as all the goods I made, and, for all that I know, sold.

Int. 35. You have spoken in one of your last answers of a horse used for a saddler's sign; do you know whether the original pattern from which the castings for that article was made is still in existence?

Ans. Yes, sir; still in existence.

Int. 36. Please look at the exhibit now shown you, marked Defendants' Exhibit "Art Casting No. 1," and say whether that horse was cast from that original pattern.

Ans. Yes, sir; this was cast from the original pattern which I engraved myself.

Int. 37. By whom was this Exhibit "Art Casting No. 1" ornamented so as to look as it does now?

Ans. By myself (which was called at that time the bay horse—our bay horse); in the presence of John Ruff the whole work was done.

Int 38. How did the process by which you ornamented "Art Exhibit No. 1" compare with the process which you used in New Britain for ornamenting the horses which you say were used for saddlers' signs?

Ans. The process was just precisely the same that it is now, with the exception then we polished the highest parts of the casting with sand-paper or emery-paper and now we polish the highest parts with the wheel and emery; otherwise the process is just the same as it was then.

Int. 39. In Int. 32 you speak of the manufacture of the Brocksieper patent sash-fasteners; do you remember the date of the patent under which such sash-fasteners were made?

Ans. I do not exactly; according to my best knowledge in 1857 or 1858.

Int. 40. State more definitely the number of the Brocksieper patent sash-fasteners ornamented by the bronzing process before you left the Peck & Walter M'f'g Co.

270 Ans. We made several lots of them, and to the best of my knowledge we may have made from one to two hundred dozen of them while I was in their employ.

Int. 41. Have you prepared any of those sash-fasteners to show

how they were made and ornamented before you left Peck & Walter?

Ans. I have and here they are.

(Counsel for defendant places in evidence two sash-fasteners mounted on blocks, and they are marked Defendants' Exhibits "Brocksieper Sash-fasteners." J. B. M., Special Examiner.

Int. 42. Say whether or not Defendant's Exhibit "Brocksieper Sash-fasteners" correctly represent the sash-fasteners made before you left Peck & Walter M'f'g Co. in appearance, color, and ornamentation.

Ans. They do.

Int. 43. Do the exhibits represent the old sash-fasteners accurately as to thinness of coating?

(Question objected to as leading.)

Ans. They do.

Int. 44. To what was the bronze color due in the old process as applied to ornamenting sash-fasteners and other articles, as stated by you?

Ans. To the heat and oxidation through the heat of the metal and the color strengthened by the use of oil.

Int. 45. Have you any specimens showing the ornamentation called "dark and gold bronze," referred to in reply to interrogatory 13?

Ans. I have, and here they are, Defendant's Exhibits "J," "J^2," "L." The same are put in evidence and marked as above.

Int. 46. Please look at the six inside knobs on the plate now shown you, marked Defendant's Exhibit "E F," and say whether you recognize them as being correct representations of articles made at New Britain in 1859; and, if so, what they are called.

Ans. They are correct representations of a carriage-knob which was called English-finish carriage-knob.

(Defendant's counsel puts the same in evidence, and they are marked as above.)

271 Int. 47. Do you know by whom or under whose superintendence or direction those English-finish carriage-knobs were made?

Ans. By Purmont Bradford. The first one I see was himself making them, and he superintended the making of them afterwards to the best of my knowledge.

Int. 48. Will you please describe the process which you saw him use in their manufacture, and if you desire you may refer to any exhibits which are on the table in explanation?

Ans. After the knobs were cast they were rolled in a rolling barrel, then turned in a lathe with a file and emery-paper, as shown in the exhibit—Defendant's Exhibit O O (which the defendant put in evidence); the next process was to cover the so-finished knobs with a varnish which they called English japan or English varnish; then they were put into sheet-iron with holes in and subjected to the heat of

the furnace or kiln, which give them the color shown in Defendant's Exhibit A B (which defendant's counsel put in evidence); then they was covered with a new coat of English japan and baked again, which made the article look like Defendant's Exhibit C D (which defendant's counsel puts in evidence), which give the knobs a blue black; then another light coat of English japan was put on and baked again, which made the knobs look like Defendant's Exhibit E E, jet black.

Int. 49. What kiln did Mr. Bradford use in making these English-finish carriage-knobs?

Ans. Yard kiln.

Int. 50. Was there any change made in the structure of the yard kiln in reference to the manufacture of these articles, and, if so, what was it and what was its purpose?

Ans. There was a change made; the kiln had formerly a brick arch over the fire, and the heat was led around the kiln by an inside plate or lining; so it was impossible to produce heat enough in that kiln to bake the English-finish knob; so Mr. Bradford had the brick arch taken away and replaced by an iron plate which, when fired, was red-hot, and then he produced heat enough to bake those English-finish carriage-knobs.

Int. 51. How high heat did it require to bake those English-finish carriage-knobs?

272 Ans. To the best of my knowledge, from 450° to 550° Fahrenheit.

Int. 52. On what do you base your judgment that it required as high a degree of heat as that?

Ans. 420° Fahrenheit will make a light straw color, if I am not mistaken; 440° Fahrenheit, a blue; and it requires to make black color a dark blue oxidation, or it is impossible to make a black color without asphaltum.

Int. 53. You say that Mr. Bradford used for the coloring of the knobs English varnish or English japan. Do you know what the composition of the liquid used for that coating was, of your own knowledge?

Ans. To the best of my judgment, I should say that it was some kind of a gum mixed with linseed oil. Of course I never made it and never saw it made.

Int. 54. What was its color?

Ans. I should call it a dark amber color.

Int. 55. Were any portions of the knobs when in the oven uncovered with this varnish; and, if so, state the effect upon the uncovered portions at each successive heating?

Ans. The bottom of the knob, where the nail is cast on and is placed on the iron plate, was uncovered, and showed at the first heat a dark straw color, as in Exhibit "A B," the uncovered knobs. In the second heating it showed a blue, like Exhibit C D, uncovered knob. The third heat would show a dark blue, the same as uncovered knobs on Exhibit E F.

Hearing adjourned until Wednesday, Dec. 29, 1880, at 9.30 a m.

273 NEW HAVEN, *Dec.* 29th, 1880—9.30 a. m.

Examination resumed.

Int. 56. You say in answer to Int. 13 that in 1857 or about that time a kiln was built under the direction of Mr. Gebhardt. Will you please describe the locality of that kiln?

Ans. The kiln was built on the south end or southeast end of the brass foundry in or on a wooden building which was used for ornamenting and japanning sewing machines. The opening to the kiln was from the wooden building, and in the kiln was a furnace or stove that it was heated with; the fuel was put in from the outside of the kiln, and I believe was called the core-room of the brass foundry.

Int. 57. How did the degree of heat used by Mr. Bradford for coloring the English-finish carriage-knob compare with the degree of heat which you used on the coat and hat hooks and other similar articles.

Ans. I could bronze my antique with 420° Fahrenheit and over, whereas Bradford used a considerable greater degree of heat, I should think 550° Fahrenheit was required, although the first coast of Bradford's wouldn't require near as much heat.

Int. 58. You have described Bradford's process as calling for three successive bakings; what was the number required for your antique bronze?

Ans. One baking.

Int. 59. You have described as part of the process of making your antique bronze brightening the prominent parts with sand-paper or emery-paper before applying the size and heat; what was the object in this?

Ans. The object was to give it an antique appearance by the contrast of the exposed prominent points and those parts which lay in the background.

Int. 60. Why did you call it antique bronze?

Ans. Because it had the appearance of old dark bronze statuary.

274 Cross-examined by Mr. LOOMIS:

Cr.-int. 61. What kind of work did you do while in the employment of James Beebe in New York upon your arrival in this country?

Ans. I made patterns by modeling for urns and parts of water fountains; made dies for gutta-percha fruit dishes, wash-bowls, and other fancy gutta-percha goods.

Cr.-int. 62. What was the business of Janes Beebe & Co.?

Ans. One article; they made the Beebe range; then they made iron fences, statuary, and fountains.

Cr.-int. 63. When you commenced working for Peck & Walter, in 1849, what kind of work did you do?

Ans. The first work of all was a punch and die for cupboard-catch; then I made coffin handles, hat and coat hooks, and other fancy patterns, and finished them.

Cr.-int. 64. What do you mean by the phrase "and finished them" in your last answer?

Ans. Coffin handles was filed, drilled, countersunk, dipped, silver-plated, burnished, and put together for the packing-room. The iron goods were drilled, countersunk; gate ground off for the black ones; for the bronze ones they were after-drilled, countersunk, and the gate ground off; some of them sized and bronzed and some of them painted and bronzed.

Cr.-int. 65. Why have you given, in answer to Int. 3d, a description of the operation practiced upon screws with rape-seed oil?

Ans. Because I was asked to answer it.

Cr.-int. 66. By whom?

Ans. By Mr. Beach or the other lawyer—one of the two.

Cr.-int. 67. Did you, in your answer to Int. 3, state fully your knowledge of ornamenting iron with heat and oil before coming to the United States?

Ans. The screw was an article regular for market, but every laborer manufacturing hardware used a similar process of ornamenting iron by baking with oil; in particular my uncle, a manufacturer of shovels—ornamented his shovels in a large part by oiling his shovels and heating them over a forge fire, and the part where the handle was inserted, after treating them with oil, they were heated blue, and the colors would reduce down until the point was left just white, or natural color of metal. I have seen, besides, door-hinges filed and polished and treated with oil the same way as I have treated my fancy work; again, I have seen in stores the Berlin castings—fancy castings—and castings coming from Seinerhuet, near Coblentz, articles finished the same as I have treated my fancy work.

Cr.-int. 68. Were these shovels you have described of steel?

Ans. Partly.

Cr.-int. 69. What part?

Ans. The point was inlaid with steel.

Cr.-int. 70. I understand you regard these processes you have described in your last two answers as substantially the same as those you have practiced in this country?

(Question objected to by defendant's counsel for the reason that the witness has described in detail the process used by him as practised in this country, and his understanding as to the extent of the comparison called for is immaterial.)

Ans. Substantially the same, with the exception that we used at home more rape-seed oil for our screws, and what kind of oil others use I could not tell you, but they used some kind of oil.

Cr.-int. 71. Was "Brocksieper picture-frame" the first article made by you using the process you have described as employed in making the exhibit in this country?

Ans. I think not.

Cr.-int. 72. When and where and upon what article did you first practise the process described by you as used upon "Brocksieper picture-frame" in producing the ground-work?

Ans. As far as I can remember I made several watch-stands representing the clock of Strasbourg, in imitation of the casting, which was a Berlin casting, bronzed in the same manner, in New Britain. I believe it was in the neighborhood of 1852 or 1853. I could not be positive; it was a good many years ago.

Cr.-int. 73. Have you heard or read the deposition given by John Ruff in this case?

Ans. I have not.

276 Cr.-int. 74. Were those watch-stands the first articles you made by the process described by you as used upon "Brocksieper picture-frame?"

Ans. As far as I remember, yes.

Cr.-int. 75. What difference, if any, was there between the treatment of the said watch-stands and the Exhibit "Brocksieper Picture-frame" by you in producing the ornamental finish? State fully.

Ans. They both were sized and baked over a blacksmith's forge fire; the watch-stand, I believe, was not further treated, *i. e.*, dipped, whereas the picture-frame was sized over again and the prominent points covered with copper bronze.

Cr.-int. 76. Do you recall any further difference between the treatment of the two articles?

Ans. Not that I know of in the way of bronzing.

Cr.-int. 77. Did you use the process described by you any time previous to the time you made the watch-stands?

Ans. I might have some tools which was oiled and drawn over the fire to give them a nice appearance, but I am not positive how many such articles I did make; it is quite common with machinists and locksmiths to color their tools with oil before they put them in their chests, and most likely I have done the same thing.

Cr.-int. 78. Do you regard the process for coloring tools with oil, which you say is quite common with machinists, as substantially the same as that described by you as practiced in ornamentation of Exhibit "Brocksieper Picture-frame?"

(Question objected to by defendants' counsel for the same reason as to Cr.-int. 63.)

Ans. I do not consider it the same as I have made my bronze work, but I consider it precisely the same as what I have seen so far of the Tucker bronze.

Cr.-int. 79. In what manner were articles of cast-iron ornamented by you at the factory of Peck & Walter M'f'g Co., and their predecessors, between 1849 and the time that Mr. Sargent took charge of the concern?

Ans. They were sized and powder-bronzed, painted, and the prominent parts powder-bronzed gold or green or copper according to the style what was made.

277 Cr.-int. 80. Please describe the process of said ornamentation in detail, giving each step fully, describing also the various kinds of finish produced—I mean the different colors.

Ans. One kind of coat and hat hook after rolled, drilled, countersunk, gate ground off, they was fastened to a block with a spring,

of which we had a couple of gross; then the hooks, after putting them on to the blocks, were sized and set on one side until they was sufficiently dry so that the size wouldn't stick to the finger, but still sufficient soft so that the bronze powder would stick to it. Then they was taken by the block and brought to a tin box, where the bronze powder was in the bottom, and a fine camel's-hair brush taken and dipped into the bronze and brushed with the bronze over the hook. That would give a single color according to the bronze used—copper, gold, or green. The second step would be to take those so bronzed hooks, size them over again, and let them stand as before, and take a chamois-skin, dip that into the bronze required, and rub it over the prominent points, which was invariably done on articles—what we called French bronze. Another kind was made after it was put on the block—same as described before—painted with a green paint which contained a considerable — turpentine and varnish; after so painted left to dry in the same manner as the size was before, sized, and the prominent points bronzed again same as before. Another kind, after blacked with japan, was fastened to the blocks, sized, and when properly dry the prominent parts bronzed either with gold or copper bronze; others was only japanned, and nothing further done to them. This is the same with jamb-hooks and other fancy work we made, with the exception of one horse, which we sold for saddler signs; was ornamented—called the bay horse—in the same manner as I have described the process of the picture-frame oiled after cleaned, the prominent points polished or rubbed with sand-paper, and the stirrup put in; was baked over a blacksmith's fire, then the few points on it were sized again and bronze powder was put on. I believe that is all.

Cr.-int. 81. Were any of these classes of goods that you have described baked or heated in the kiln after the bronze powder had been applied; if so, what classes?

Ans. We did have a small steam box which we used sometimes to dry them, but not being necessary when we have had time
278 to fill the orders, we let them dry outside, because as little as the steam heat was it would affect the color of the bronze powder a little.

Cr.-int. 82. How hot was this steam-box?

Ans. I never examined it. I couldn't tell.

Cr.-int. 83. Where was this box situated and what was its construction? Describe fully.

Ans. Simple tin box set on to a coil of pipe. I think it was about two and a half feet square. I am not positive of the size. It was near the lacquering apparatus—where the lacquering was done—which we had removed several times from one place to another. I once had it in the wheel pit and other times in the third or fourth floor.

Cr.-int. 84. How many of these steam pipes were there; what was their size?

Ans. I believe there was four or five; inch pipes.

Cr.-int. 85. Were there any other methods of ornamenting iron goods practiced at Peck & Walter's prior to 1856?

Ans. None I know of, except it might be bolts which were ground and polished.

Cr.-int. 86. When did you first practice the process described in your cross-interrogatory 73 upon the bay horse casting? Repeat that description and state when you began to practice it.

Ans. I think that we started to make them in that way between 1850 and 1852. After the casting is cast by facing the sand they was cleaned with a wire brush, the gates ground off, the prominent points properly sandpapered, then oiled and baked over a blacksmith forge until it had the appearance of a bay colored horse, then we sized the strap work and part of the saddle and some other prominent points and brozed them with powder bronze.

Cr.-int. 87. In how large quantities did Peck & Walter make bay horses in the way you have described in your last answer, between 1850 and 1856, and what name did they apply to this finish which was put on them?

Ans. They did not make them but in small quantities, generally making, perhaps, two or three sets at a time, which consisted
279 of white horses, of gold horses, gilt or powder bronzed, and some spotted horses having white and black in, and then the same quantity of the bay horse which they made this style; so in all a batch would perhaps amount to a dozen or fifteen or a dozen and a half.

Cr.-int. 88. How do you fix the date when the "Brocksieper picture-frame" was made?

Ans. Between fifty-three and fifty-four I received my father's picture; I remembering the time, being about five years I haven't had no news from home, and soon after the picture arrived I procured the frame, the photograph beirg on glass, and would not be very well to hang up in the front room without a frame to put a glass into so that I could hang it up.

Cr.-int. 89. How do you know that 1853 or 1854 was the year in which you received the picture and made the frame. Do you remember that to be the fact, or have you any other mean- of fixing the date?

Ans. The only means I have being about that time—I can't be positive of the year or date—was that I hadn't heard from home for about five years.

Cr.-int. 90. Have you not already stated in your affidavit filed in this case that you bronzed the picture-frame—"Brocksieper picture-frame"—in 1856?

Ans. I may have and I may not have bronzed it until then, because I received the picture about five years after leaving home, and, as I have stated before, I could not be positive of date and year, only about being so many years past; I have no particular means and particular times which I could fix it by exactly.

Cr.-int. 91. I understand, then, that you are unable to state whether in 1853, 1854, or 1856 you bronzed this picture-frame; that you have no means of fixing the exact date?

Ans. As I have stated before, and I believe I have stated it in my first testimony, I was not positive of the time; that I mentioned about that time, if I am correct.

Cr.-int. 92. Where did you find the pattern for the frame which you used for the picture?

Ans. I am not positive of that, but, if my recollection is right, it might be from Gebhardt, who worked at that time in Forrestville, or I might got it from a man what came from Seinerhuet
280 and worked for Russell & Irwin; that was, however, a Berlin casting; what I mean by a Berlin casting is one what came from abroad.

Cr.-int. 93. When did you first make Mr. Gebhardt's acquaintance?

Ans. Pretty soon after I commenced to work in New Britain; the date and year I could not state.

Cr.-int. 94. Where did he live when you first made his acquaintance and what was his business?

Ans. In Forrestville. His business was ornamenter and painter for Otis, or Schlueter, the contractor.

Cr.-int. 95. Of what material was the pattern which you procured of Gebhardt?

Ans. I am not positive if I made the brass pattern or if he had it already made, from whom I had it, but the pattern what they were cast from, if my memory is correct, was brass.

Cr.-int. 96. Where did you have the frame cast which was used?

Ans. Peck & Walter's.

Cr.-int. 97. Did you have more than one frame cast from this pattern?

Ans. I don't know; but I think I had a few cast.

Cr.-int. 98. Where did you procure the materials you used in bronzing this frame?

Ans. At Peck & Walter's, of course.

Cr.-int. 99. What materials did you use in bronzing this frame?

Ans. Size and bronze powder.

Cr.-int. 100. Was that the same size which you used for your regular sizing, which you have testified was composed of equal parts of linseed oil, turpentine, and copal varnish?

Ans. Yes, sir.

Cr.-int. 101. Did you not say in your affidavit previously filed in this case to which you have been referred that the material which you used for this purpose on the frame was linseed oil?

Ans. I may have said so, if I was asked by anybody; as a general thing I would name it linseed oil, knowing the substance being mainly linseed oil.

281 Cr.-int. 102. Who made the mixture to which you have testified—the sizing?

Ans. I did.

Cr.-int. 103. How often was it your custom to mix it?

Ans. Had to fix it up every day even if it was not used up.

Cr.-int. 104. Did you use painters' common raw linseed oil?

Ans. I believe it was; I did not buy it myself; it was bought by the company.

Cr.-int. 105. Was the "Brocksieper picture-frame" pickled or treated with acid in any way?

Ans. I don't know, but my impression is that it was not, the casting coming to me from the foundry all clean and rolled, and therefore impossible for me to tell whether it was pickled or not before it was rolled.

Cr.-int. 106. Have you not already testified that this casting was cleaned and polished by yourself?

Ans. I have, and state so now, that I cleaned and polished my castings always myself, but the rolling and cleaning was always done in the foundry.

Cr.-int. 107. There is a difference, then, between the cleaning that you did and the rolling and cleaning that was done in the foundry; what was it?

Ans. Decidedly; the rolling and cleaning in the foundry was, if the work was not faced, pickling and rolling bright; if faced the work was scratched and rolled; the cleaning I done was to clean the casting from the dirt and any particles of sand with a wire brush and polished the prominent parts with sand-paper.

Cr.-int. 108. How did you apply the size to the frame?

Ans. With a fine, stiff brush—put it on as light as I could with a brush to cover the whole surface.

(Hearing adjourned until Monday, January 17th, 1881, at 2 p. m.)

282 NEW HAVEN, *January* 24, 1881—2 p. m.

Cross-examination resumed. Parties present as before.

Cross-interrogatory 108. What record have you, if any, of the number of "Brocksieper sash-fasteners" made by Peck & Walter Co. and by Sargent & Co.?

Answer. Only a rough estimate of about how many was made; no record, only my memory.

Cr.-int. 109. Who owned the patent for making "Brocksieper sash-fasteners" as they were made by the Peck & Walter M'f'g Co.?

Ans. The company.

Cr.-int. 110. When did the company begin to make the several lots referred to in answer to interrogatory 40 of the "Brocksieper sash-fastener" ornamented by the bronzing process?

Ans. I guess as soon as we received the patent or had knowledge that the patent was granted.

Cr.-int. 111. What year was that?

Ans. I cannot say positive; either 1857 or 1858.

Cr.-int. 112. Did the Peck & Walter M'f'g Co. manufacture "Brocksieper patent sash-fasteners" ornamented in any other way than by the bronzing process referred to?

Ans. Not while I was in the concern, except experiments.

Cr.-int. 113. Through whom was this Brocksieper patent for this sash-fastener obtained?

Ans. I don't remember the name; it was a Hartford patent agent.

Cr.-int. 114. Did you make any of these sash-fasteners on your own account?

Ans. I did not.

Cr.-int. 115. Do I understand you, then, that all that were made of the "Brocksieper patent sash-fasteners" were made and ornamented like Defendants' Exhibit "Brocksieper Sash-fastener?"

Ans. All I made were made that way, with the exception of trials or experimenting.

Cr.-int. 116. You were familiar, as you have already stated, in 1857 with the methods of applying finish like that on "Brocksieper sash-fastener?"

283 Ans. Yes, sir.

Cr.-int. 117. Why, then, did you need to experiment in order to produce such finish?

Ans. I tried to imitate a sash-fastener manufactured by Judd, which took the lead in market, and to produce the same appearance in color and finish, which looked to me like painted finish, and, therefore, I tried to produce the same finish by painting, wherein I failed, and accomplished it by trying my antique bronze.

Cr.-int. 118. Through how long a time were these experiments conducted?

Ans. I cannot say; maybe a few days or a few weeks. It didn't taken very long until I discovered how to imitate it as near as could be.

Cr.-int. 119. Do you say that the sash-fasteners made by Judd at that time were of such appearance and color and finish that by trying your antique bronze process you succeeded in imitating them, and that after repeated experiments?

Ans. Very nearly so.

Cr.-int. 120. Under what name were these sash-locks sold by the Peck & Walter M'f'g Co.?

Ans. I don't recollect the name they gave to them.

Cr.-int. 121. Do you recollect that they were not sold under the nams of "Judd's Patent Sash-Fasteners?"

Ans. I am positive they wasn't.

Cr.-int. 122. Under what name as to finish were these "Brocksieper Sash-Fasteners" sold?

Ans. I don't know what they called the finish, but I know that they were sold as "Sargent's Patent Sash-Fasteners."

Cr.-int. 123. What name did you apply, at the time, to the finish you have testified to as similar in color and appearance to that on "Brocksieper Sash-Fasteners?"

Ans. I called it myself Judd's finish, but don't know what the company called it.

Cr.-int. 124. Are you able to distinguish between the finish on "Brocksieper Patent Sash-Fasteners" and the finish on Defendants' Exhibits "H," "G," and "H²," and, if so, what is the difference?

Ans. The bronzing of both of them is just alike. The differ-

284 ence in the looks, though, is apparent on account of one being a plane surface and the other ornamented and matted, which gives the matted parts a dark appearance and a considerable con-

trast against the high points and prominent parts, which are polished and cleaned by sand-paper, which makes those parts show brighter.

Cr.-int. 125. What name was applied to the finish like that on "G," "H," and "H^2," Defendant's Exhibit, by the Peck & Walter Co.?

Ans. Antique bronze.

Cr.-int. 126. Enumerate the articles to which the finish known as antique bronze was applied by the Peck & Walter Co.

Ans. I cannot tell all the articles to which the name antique was applied. I can state all the articles to which I myself applied the name antique bronze, which were coat and hat hooks, jamb-hooks, cupboard-catches, match-boxes, looking-glass stands, ornaments of different descriptions.

Cr.-int. 127. What proportion of the goods made by the Peck & Walter M'f'g Co., of the styles enumerated by you in your last answer, were ornamented with antique bronze while you were in the employ of said company?

Ans. The proportion was not very large, being a new article in market and me not staying long enough in the concern to see it thoroughly developed.

Cr.-int. 128. Was the demand for such articles, ornamented with bronze antique, an increasing one?

Ans. It seemed so, for I had to repeat several batches.

Cr.-int. 129. In what year of your stay with the Peck & Walter M'f'g Co. did the company make the largest amount of these goods ornamented with bronze antique?

Ans. In the last year of my stay.

Cr.-int. 130. Do you know whether the company continued to make such goods after your departure?

Ans. I don't know anything about it only when I came back after five years' absence they were making the same goods; but if they made one or a million while I was gone I cannot tell.

Cr.-int. 131. What persons did you leave in the employ of the Peck & Walter Co. when you went away competent to produce the finish you have testified to as bronze antique?

285 Ans. Any boy in the shop could have done it just as well as I did.

Cr.-int. 132. Name the persons then in the employ of the Peck & Walter Co., when you left in 1859, who you knew were competent to produce this finish antique bronze.

Ans. The names of the parties who would be competent to do this work would be endless if I could remember their names, but I will name as far as I can remember them. Purmont Bradford, John Ruff, Joseph Ruff, James O'Shea, George Pfeifer; in fact, any person seeing it done once can do it again.

Cr.-int. 133. Are you able to add any to the list you have commenced above? If so, please do so.

Ans. Charles Schneppel, Christian Hoeckh, Adolphus Von Stout; that is all I can remember just now.

Cr.-int. 134. How many of the men you have mentioned above, if

any, have made antique bronze for the Peck & Walter M'f'g Co., under your direction or otherwise, before you left in 1859? Please name them.

Ans. I know only two who actually made antique bronze, which is John Ruff and Christian Hoeckh.

Cr.-int. 135. Where is Christian Hoeckh?

Ans. In Meriden, Conn.

Cr.-int. 136. Did you do the ornamentation with antique bronze for the Peck & Walter M'f'g Co. by contract or otherwise?

Ans. Partly by contract and partly as overseer.

Cr.-int. 137. Who succeeded you as contractor in this department?

Ans. The department was divided up. John Ruff got one part and Schmidt, whose first name I don't know, took the other, and Mr. Bradford, I guess, another. Who else got a share of it I can't tell; Ruff got the turning, filing, and finishing of goods; Schmidt got the coffin trimmings, casting, plating, and burnishing the same; and, if I am correct, Mr. Bradford has the oversight of the ornamental work. I am not positive, but I think so.

Cr.-int. 138. Under which head would the production of bronze antique come?

Ans. That ought to be under the ornamental.

286 Cr.-int. 139. You say that when you returned to the employ of Sargent & Co., in New Haven, they were still making antique bronze; have they continued to make it from that time to the present; if so, what names have they applied to the same?

Ans. They made an article which looked very similar to my antique bronze, and do make it to-day under the name of Berlin bronze.

Cr.-int. 140. I don't understand that you have had any contracts for making Berlin bronze since your return to Sargent & Co. Am I right?

Ans. I did not have any contract for making Berlin bronze goods.

Cr.-int. 141. Who has had the contracts for making Berlin goods since you have been in their employment in New Haven?

Ans. Johnson, Sr., first, and now Johnson, Jr.—George Johnson.

Cr.-int. 142. Of the names you have given in answer to Cr.-ints. 132 and 133, please state the names and residences of the parties.

Ans. Purmont Bradford, New Haven; John Ruff, New Haven; Joseph Ruff, New Haven; James O'Shea, North Haven; George Pfeifer is dead; Charles Schneppel, Montreal, Canada, the last I heard of him; Christian Hoeckh, Meriden, Conn.; Adolphus Von Stout, New York city, the last I heard of him.

Cr.-int. 143. Where does Schmidt, named in answer to Cr.-int. 137, live?

Ans. Last I heard of him he had a beer garden in New Haven.

Cr.-int. 144. Where was the garden?

Ans. I understood it was near the new depot, as near as I know. I have never been there.

Cr.-int. 145. Describe the kiln first referred to in your answer to Int. 15.

Ans. It was in a wooden building, as well as I can remember, in

the yard of the factory, with a brick arched fire-place and bricked inside the kiln, with an iron lining and an iron door; the wooden building, which the kiln did not take up, was used for black-
287 ing. Mr. Bradford changed the old kiln, or rather the fire-place in the kiln, by breaking away the arch over the fire and replacing the same by a cast-iron plate, to produce more heat in the kiln, so as to enable him to make English carriage-knobs, which he was not able to do before that change was made.

Cr.-int. 146. In what year was that change made by Mr. Bradford?

Ans. I can't say positive, but I believe that was made in 1856 or 1857.

Cr.-int. 147. Now, describe the second kiln referred to in answer to Int. 15—the Gebhardt kiln?

Ans. After my refreshed memory and the best of my knowledge that was situated on the southwest or west side of the brass foundry, in or on a wood building joining the brass foundry; the opening to the kiln was from the wooden building, and the firing of the kiln was done from the end of the brass foundry or core-room. I believe that is all—that answers the question.

Cr.-int. 148. What do you mean by your "refreshed memory"—refreshed by whom or what?

Ans. By going to New Britain and examining the kiln what is there now; finding there entirely different arrangements from what I had any knowledge of; but, by looking at the spot, my memory got refreshed, of what it had formerly.

Cr.-int. 149. When was the Gebhardt kiln built?

Ans. To the best of my memory in 1857.

Cr.-int. 150. Why was it done under the direction of the boss painter, Mr. Gebhardt?

Ans. He had worked for a great many years at the ornamenting business, and understood the kiln better than any man in our concern.

Cr.-int. 151. What work did Gebhardt do that required a kiln "particularly constructed for high heat?"

Ans. Sewing machines.

Cr.-int. 152. What part of sewing machines require such heat?

Ans. Those parts what had to be blacked and ornamented.

Cr.-int. 153. Describe the work that Gebhardt did on sewing machines in this kiln.

288 Ans. Japanning or blacking them

Cr.-int. 154. How did Gebhardt's japanning of sewing machines differ from ordinary japanning in the amount of heat required.

Ans. I never done the japanning myself, so I can't tell as an expert how much heat is required for fine japanning, but understood Gebhardt to say that he needed a strong heat.

Adjourned until Tuesday, Jan. 25, 1881, at 10 o'clock a. m.

NEW HAVEN, *Tuesday, Jan.* 25, 1881—10 a. m.

Examination resumed. Parties present as before.

Cr.-int. 155. To return to the subject of the "Brocksieper Picture-Frame" referred to in answer to Cr.-int. 101; after applying the size to the frame, what did you do next?

Ans. Heated it over a fire until the required color was obtained.

Cr.-int. 156. What sort of a fire?

Ans. Blacksmith's forge.

Cr.-int. 157. How was the forge heated; what sort of a fire?

Ans. Coal fire; heated with a pair of wind-bellows; it was common soft coal; after the gas was burned out we held the article on top of the fire.

Cr.-int. 158. What do you mean by the "required color?"

Ans. Oxidizing the metal to a yellow color.

Cr.-int. 159. How near to the fire did you hold the frame?

Ans. It was immaterial. We held it sometimes right on the coal, sometimes a little distance off, a few inches; depending a good deal on the heat of the fire.

Cr.-int. 160. With what instrument did you hold it?

Ans. Generally with a blacksmith's tong, but I have used, on other occasions, a piece of sheet-iron or a bent iron wire, so that I could lay the article on it.

289 Cr.-int. 161. How long did you heat the frame before attaining the "required color?"

Ans. It depended a good deal on the heat of the fire; generally about four or five minutes.

Cr.-int. 162. Where was this "required color" obtained—on what part of the frame?

Ans. The required color was obtained all over the frame, but the lower part of the frame, what was not oiled, having a plain surface, would show a straw color, as near as I could obtain it. That is what I call the required heat.

Cr.-int. 163. To what further process did you subject the frame after heating as you have described?

Ans. Sizing it over again and let it stand or lay until it wouldn't stick no more to the finger; then I would put, with a chamois skin, copper powder on the prominent points.

Cr.-int. 164. What further treatment did the frame receive?

Ans. Let it stand or lay until perfectly dry, brush off the loose bronze powder, and was considered finished.

Cr.-int. 165. Has the surface of the picture-frame been modified by any treatment since the close of the operation you have described, either by you or any other person?

Ans. No, sir.

Cr.-int. 166. Has it been in your custody ever since?

Ans. It has, until I delivered it to the court.

Cr.-int. 167. Did you finish more than one frame in this way, at the time you finished this?

Ans. I believe I have finished several—it may be three, four, or half a dozen, but not a great many.

Cr.-int. 168. Did you show the frame to any one and explain the process of manufacture?

Ans. I may have explained the process to some of my men, but I cannot tell to whom. As far as showing it, it hung for ten years in my parlor-room, so that anybody could see it.

Cr.-int. 169. Did you take it to your employers and exhibit it?

Ans. I don't recollect, if I did. I might.

Cr.-int. 170. Do I understand you that this was the first piece of iron ornamented in imitation of bronze you made in this country, prepared in this way?

290 Ans. I thought once it was, but on refreshing my memory I found I had made some ornaments before this.

Cr.-int. 171. Please enumerate all such ornaments.

Ans. I can only remember one now, which was a watch-stand, which represented the Strasburg clock.

Cr.-int. 172. Have you any way of fixing the year in which you made the said watch-stand?

Ans. I have not, only I know that it was done some time before I made those frames.

Cr.-int. 173. In what year did you make the looking-glass frames which you have testified Defendants' Exhibits "I" and "I²" resemble?

Ans. At or about the time when Mr. Sargent took charge of the Peck & Walter M'f'g Co.

Cr.-int. 174. Did you make them before or after Mr. Bradford's experiments with the brown varnish to which you have referred?

Ans. To the best of my knowledge it was at or after the experimenting on the carriage-knobs.

Cr.-int. 175. Were the English-finish carriage-knobs made by Peck & Walter before Sargent took charge of the business?

Ans. They were, but not the same way as they make them now and after Bradford's experiments.

Cr.-int. 176. Did Peck & Walter make and sell English-finish knobs when you first went to work for them?

Ans. I don't know.

Cr.-int. 177. What difference was there between the English-finish knobs, as made by Peck & Walter before Sargent took charge of the works, and those made later, after Bradford's experiments? State fully.

Ans. Not being under my supervision I can only say, as it appeared to me, that the English-finish knob, before Sargent took charge of the concern, were only japanned the common way, and a little extra care taken that they were nicer and smoother blacked.

Cr.-int. 178. You are positive that this was not the case after Bradford's experiments?

Ans. I don't know anything about it; they were not under my supervision; I don't think they was —they ought not to

291 be; I am positive while I was there they was made in this new style.

Cr.-int. 179. What was the process of finishing frames like Exhibits "I" and "I²?"

Ans. After cast gate was ground off, sand brushed out clean, sand-papered or emery-papered the high points, sized and baked.

Cr.-int. 180. Where did you bake such frames?

Ans. Some I baked over the forge, and, I believe, some I baked in the yard kiln, and some I baked in the Gebhardt kiln.

Cr.-int. 181. Now, as a matter of fact, do you remember anything about how you baked them?

Ans. Decidedly.

Cr.-int. 182. Do you remember what heat you used?

Ans. Those over the forge, I don't know what heat I used; those in the yard kiln, I don't know what heat I used; but those in the Gebhardt kiln, we used from 400° to 500° Fahrenheit.

Cr.-int. 183. Did you make these frames, like "I" and "I^2," all at one time, that you have testified were baked in these various places?

Ans. I did not; made between time; I mean by "between time" between my regular work.

Cr.-int. 184. Did you make them all within the same year?

Ans. I made one hundred of one kind in the same year; the others I may have worked two years at.

Cr.-int. 185. How many patterns of looking-glass frames did you manufacture prior to 1859?

Ans. I don't know exactly; it might have been a half a dozen different styles.

Cr.-int. 186. State as fully as possible to whom you sold these frames, giving the names and residences of the parties.

Ans. I might remember a few names, which was, I guess, Mr. Bradford; I guess he had some of them; I guess John Ruff had some; I guess Christian Hoeckh, Paul Revoir, and his brother; Mr. A. Trout; the residences were in New Britain; where they are now I cannot tell, except Ruff and Bradford in New Haven, and Hoeckh in Meriden.

Cr.-int. 187. Do you know where Revoir and Trout live?

292 Ans. The last I knew of them they lived in New Britain.

Cr.-int. 188. In how many styles did you finish such picture-frames as you sold?

Ans. That hundred what I spoke were all antique bronze, the high points tipped with bronze powder, a part of them; besides that I made cast out of brass and lacquered; cast out of brass and silver-plated; painted iron ones and bronze-powdered high points, sized them some and covered them with gold powder; some made green with green bronze, and the high points gold or copper bronze; some simply japanned and a great many other ways I can't remember now.

Cr.-int. 189. Do you know where any of these frames now are?

Ans. I do not. I spent a whole day in New Britain to find some of them, but I could not.

Cr.-int. 190. What do you say to one which one of Corbin's men found for you?

Ans. It was not one of the antique bronze; it was a painted one,

I believe. I was looking for the antique bronze ones, not for the painted ones.

Cr.-int. 191. Where is that painted one referred to in your last answer?

Ans. I believe a man by the name of Gusmann has it; at least he had it.

Cr.-int. 192. Did you have it in your possession at any time within the last year?

Ans. I did not. I only looked at it.

Cr.-int. 193. Were you at one time concerned in the manufacture of sewing machines for the Peck & Walter Co.?

Ans. I was.

Cr.-int. 194. Was the manufacture of sewing machines for the company first carried on in your name?

Ans. It was.

Cr.-int. 195. Was not the manufacture of sewing machines carried on in your name in order to evade an injunction which had been obtained against Sargent and the company?

(Objected to by defendant's counsel as irrelevant to this issue.)

293 Ans. I don't know if it was for that purpose or not. I had an injunction served on me at the time we made the sewing machines. I used my own invented machine and did not know that it interfered with any other patent.

Cr.-int. 196. Is it not a fact that sewing machines were manufactured by the Peck & Walter Co. and Mr. Sargent before you began to make them in your own name?

Ans. I think not. I ought to know if they had been. We made parts of sewing machines for a concern in Bristol—I don't know what its name was—before I made my own sewing machines.

Cr.-int. 197. Was this manufacture also terminated by an injunction?

Ans. I believe it was; at least I heard so.

Cr.-int. 198. You have mentioned the Gebhardt kiln as one where sewing machines were japanned. Was this the one erected by Mr. Sargent about 1857?

Ans. I believe it was about that time.

Cr.-int. 199. Was any new oven built while you was there?

Ans. I believe, at the time when I left the concern, they were erecting some new kilns, but I don't know much about them.

Cr.-int. 200. Was a steam-heated kiln used by Sargent & Co., to your knowledge, in their process of manufacturing sewing machines?

Ans. I thought once there was, but, by refreshing my memory, I don't think there was.

Cr--int. 201. What have you to say to your answers to cross-interrogatories 130 and 131 in your deposition taken in the suit of Tucker *vs.* Burdit *et al.*, which questions and answers are as follows: Cross-interrogatory 130. "Was any other new oven built while you were there?" Answer. "Yes, sir; a steam oven on the top of the other one." Cross-interrogatory 131. "Please describe this steam oven

and state for what purpose it was used." Answer. "My recollection is not very good on that, but to the best of my recollection there were two sets of coils of steam-pipes clear around the side, one on the bottom, and one on top, and I believe that where the door was we had to step over the lower coils, if my impression is right. Otherwise it was fixed with bars and hooks, the same as any other kiln. When I had the supervision it was used for the
294 last varnish-baking after machines were painted and gilt completely, not having heat enough to discolor the varnish."

Ans. I have to say about that that at the time when I gave the testimony I was not positive about the kiln. We had some kind of a kiln built at a time where we dried our sewing machines after they were finished and varnished. That was my impression at the time I gave the testimony and still is, in my impression, that it was so, but I am convinced, since I saw the kiln built after I left Peck & Walter Co., that they are not the ones I had reference to, and may have mixed the Gebhardt, which was at about the same place, with the steam kiln, what they built afterwards on the second floor, at about the same place where the Gebhardt kiln stood, and, therefore, I am not positive now, but have the impression still yet, that we had some steam-heating kiln, other than the one that stands there now where we dried our finished sewing machines.

Cr.-int. 202. You still think then that there were two kilns, the Gebhardt kiln and the steam kiln, over it where you knished sewing machines?

Ans. I am not positive, but that is my impression.

Cr.-int. 203. Did you ever attempt to produce with the English brown varnish used by Bradford antique bronze, or make any experiments with it?

Ans. I may have, but I don't recollect now.

Cr.-int. 204. How long was Bradford experimenting; how many days in making English-finish carriage-knobs?

Ans. I can't tell; I only saw him to work a few minutes at a time while he was experimenting.

Cr.-int. 205. When you used the yard kiln in making antique bronze how long were the articles left in the kiln to bake?

Ans. Left over night.

Cr.-int. 206. Were the black japan goods baking in this kiln at the same time?

Ans. They were, only not quite as near to the plate.

Cr.-int. 207. How long did it take you to bake antique bronze in the Gebhardt kiln?

Ans. That depended on the heat; it wouldn't take but a short time if we had 500° Fahrenheit; if it had 420° to 440° Fahrenheit it would take about twenty minutes.

295 Cr.-int. 208. Do you remember finishing match-boxes for the company in antique bronze?

Ans. I thought once that we had not made any, but, to refresh my memory, I looked over our old patterns, and it came back to my mind that we made a considerable many of match-boxes and finished them in antique bronze.

Cr.-int. 209. In what other styles did you finish match-boxes?

Ans. I don't remember in what styles others were finished. I made no others; but, come to think, I did. I made the French bronze style, which is green bronze and yellow bronze.

Cr.-int. 210. Were the patterns of coat and hat hooks, looking-glass frames, Art Exhibits 1 and 2, represented by exhibits here in evidence, made only by the Peck & Walter M'f'g Co. and its successors?

Ans. I think the coat and hat hooks were made by every hardware man in the country. The looking-glass stands and art castings, I don't know if anybody else made them or not.

Cr.-int. 211. How about the match-safes; how many patterns did you make and were they imitated by other manufacturers?

Ans. I believe I made two kinds. If they were imitated by others I don't know; but I think likely they have been.

Cr.-int. 212. Please describe the patterns of the match-safes, if you remember them?

Ans. One was basket shape, with a basket top or cover, like willow-ware. The other, I don't know what the bottom was; but the top had a dog on; but I believe the bottom was basket shape, too.

Cr.-int. 213. Did you prepare these exhibits, "Art Castings Nos. 1 and 2;" Defendants' Exhibits "H^2," "G," "H," "I," "I^2," "J," "J^2," and "L," or were they prepared under your supervision?

Ans. The antique bronzing I did all myself; the grinding and drilling was done under my supervision.

Cr.-int. 214. When did you bronze them and what material did you use?

Ans. Within a year—the past year—while this case is pending; I used size for bronzing.

Cr.-int. 215. How long were these exhibits in the oven and what was the heat?

296 The "Art Castings Nos. 1 and 2" and "I" and "I^2" were made over a blacksmith's forge; the others were made in a kiln; I don't know the exact time they were in the oven, but we had 440° Fahrenheit, if I am not mistaken.

Cr.-int. 216. Were there any other similar articles bronzed at the same time?

Ans. I don't believe there was.

Cr.-int. 217. What of the carriage-knobs put in evidence in this case; were they not also made by you for the purposes of this case?

Ans. They were not.

Cr.-int. 218. These exhibits made by you were furnished for the express purpose of being used as exhibits in this case, were they not?

Ans. They were made for the express purpose of imitating those we had made in former years, with exception of the exhibit marked Defendants' Exhibit "Brocksieper Picture-Frame."

Cr.-int. 219. Did you prepare an exhibit like "Art Exhibit No. 1," but with bronze powder on the salient faces?

Ans. I did.

Cr.-int. 220. I understand that the Peck & Walter M'f'g Co. sold

articles like "Art Casting No. 1," but with bronze powder on the salient faces; am I right?

Ans. They did.

Cr.-int. 221. Did they sell articles like Exhibit "Art Casting No. 1" and without bronze powder on the salient faces?

Ans. I think they did, but I am not positive.

Cr.-int. 222. In your affidavit in this case of Tucker *vs.* Sargent the Exhibit "Brocksieper Picture-Frame" is referred to as having a "thin coating of linseed oil;" further on in your said affidavit you use the following language: "While in the employ of the Peck & Walter M'f'g Co. in New Britain previous to 1859 I bronzed looking-glass frames made of cast-iron in substantially the same way as is described in bronzing the picture-frames, Exhibit "Brocksieper Picture-Frame." I had the iron castings thoroughly cleaned and the prominent parts ground and polished. I then covered the face of the frames and the stands with a mixture of copal varnish,
297 linseed oil, and turpentine, put on thin with a brush." Say whether or not you intended to be understood, at the time the affidavit was draughted, that the ingredients of the coating applied to the Exhibit "Brocksieper Picture-Frame" were the same as the ingredients of the coating applied to the looking-glass frames?

Ans. They all was made with size. The oil was an expression not properly meant, although we frequently used the name for that same mixture—most generally called it oil in the shop.

Cr.-int. 223. Did you attend personally to baking these articles of antique bronze made by Peck & Walter M'f'g Co. while you were in their employ?

Ans. I did bake them most all personally; what I did not bake personally were done under my supervision.

Cr.-int. 224. Did you at any time have charge of the manufacture of English-finish carriage-knobs?

Ans. Only the turning.

Cr.-int. 225. How many stories were there in the wooden building into which you have testified the Gebhardt kiln opened?

Ans. Only one story without ceiling.

Cr.-int. 226. How was access gained to the steam oven which you have testified as being built over the Gebhardt kiln, to the best of your recollection?

Ans. The whole thing is very unclear to me. I have been trying very hard to rake up my memory how it was situated and where, but I have failed to get a clear view of it, and leaves only the impression that there was such a thing made.

Cr.-int. 227. How do you explain your answers given in the case of Tucker *vs.* Burditt & Williams in answer to cross-interrogatories 240, 241, 142, 243, 244, which I will quote, as follows:

"Int. 240. Had the ends next to the street, which you have marked the paint-room and kilns, more than one story?"

"Ans. The kiln had two stories."

"Int. 241. Where were the kilns which Mr. Sargent put up in 1857?"

"Ans. In the building marked kiln."

"Int. 242. How many of these kilns were there?"

"Ans. Two—fire and steam kilns."

298 "Int. 243. Do you mean two fire and two steam kilns, or one each?"

"Ans. No, one each."

"Int. 244. Were they on the first floor or second?"

"Ans. Fire kiln on the first and steam kiln on the second."

Ans. As I have stated before, I don't remember distinctly how the thing was, and it is, as I have said before, still my impression that there was a fire kiln and a steam kiln on top, but I ain't positive at all; I have tried very hard to get a distinct idea how they were situated, but I have failed, and cannot, even now, give only the one positive idea and fact about the fire kiln; about the steam kiln I have only an idea that it was so.

Cr.-int. 228. You had no difficulty in remembering when you testified before about these matters?

Ans. It was just as indistinct to me then as it is to-day, only, trying to refresh my memory, I haven't been able to clear it fully.

Cr.-int. 229. By what sort of a furnace was the Gebhardt kiln heated?

Ans. It was a stove inside of the kiln—an iron furnace.

Cr.-int. 230. Describe the furnace; how high; what its dimensions?

Ans. Well, I cannot say positively, but I give you as near as my recollection goes, which is about four feet high, and I should judge about two feet in diameter, fired from the foundary side or core-room.

Cr.-int. 231. Was this furnace round or square?

Ans. If my recollection is right it was square, but I am not positive.

Cr.-int. 232. Have you not testified that it was round in the last clause of your answer to cross-interrogatory 250 in your deposition in the Tucker *vs.* Burditt case?

Ans. Come to think again, I think round was right; it is hard to tell; it is only a recollection as I saw it then; I saw it thousands of times; as I stated before, I am not positive which it was.

Cr.-int 233. How was this round stove or square stove fired—by a pipe or by being set in the wall?

299 Ans. The stove stood free in the kiln and was connected somehow with the core-room; exactly how it was done I don't know now, but I think likely it was connected with a cast-iron box.

Cr.-int. 234. In what condition was these kilns when you left the company's employment in 1859?

Ans. I think they was in the same condition as I have described it.

Cr.-int. 235. When you used the old oven in the yard for making antique bronze was the oven heated before the goods were put in?

Ans. To the best of my knowledge it was not.

Cr.-int. 236. Am I right then in understanding that after the articles were put in the fire was started and allowed to burn all night?

Ans. I think that was it.

Cr.-int. 237. Do you know whether additional fuel was put in during the night?

Ans. I think not.

Cr.-int. 238. In using the Gebhardt kiln did you heat it before the articles of antique bronze were put in to bake?

Ans. I did.

Cr.-int. 239. How hot was it usually when the articles were put in?

Ans. Calculated to have it between 400° and 500° Fahr.

Cr.-int. 240. Did you keep it at that temperature while the baking was going on?

Ans. We calculated to keep it about 440° Fahr.

Cr.-int. 241. How long did the baking of the antique bronze take in this oven and at this heat?

Ans. Depended on how many degrees it was. At 500° Fahr. it would not take but a short time; at 440° Fahr., to the best of my knowledge, it took twenty minutes, more or less.

Cr.-int. 242. How far from Sargent's factory, where you worked in New Britain for the Peck & Walter M'f'g Co., is the factory of P. & F. Corbin?

Ans. I should think about a couple of hundred feet.

Cr.-int. 243. Can you now recall the names of any men em-
300 ployed by you in New Britain between 1856 and 1859 not previously mentioned? If so, please mention them, giving names and address.

Ans. I may be able to give a few more; my memory of names is very poor; I shall do my best to give all I can; a fellow by the name of Tracy, in New Britain; another one by the name of Bryan Fagan and a brother of his, in New Britain; Heidacher, in New Haven; Christopher Rebstock and A. Rebstock, in St. Paul, Minn.; I believe he is there; Fritz Puehl; the last that I heard of him was in New York city; that is all I can remember.

Redirect examination by Mr. BEACH:

Redirect interrogatory 244. You say, in answer to cross-interrogatory 226, relating to the mode of gaining access to the steam oven, as to which you have given your impression that "the whole thing is very unclear to me;" what did you intend to include in that answer as being unclear to your mind; did you intend to include the Gebhardt kiln, its location, or its construction?

Objected to as leading.

Ans. What was unclear to me is about the steam kiln—about the Gebhardt kiln—as I have stated before it is perfectly clear to me.

F. W. BROCKSIEPER.

Adjourned until Wednesday, January 26, 1881, at 10 o'clock a. m.

301 NEW HAVEN, WEDNESDAY, *Jan.* 26, 1881—10 o'clock a. m.

Examination resumed. Parties present as before.

PURMONT BRADFORD, a witness produced by and on behalf of the

defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. Purmont Bradford; age, 62; residence, New Haven, Conn.; occupation, superintendent at Sargent & Co.'s.

Int. 2. How long have you been in the employment of Sargent & Co. and of their predecessors in business?

Ans. Over thirty years.

Int. 3. Can you give the different names and styles under which the predecessors of Sargent & Co. have carried on their business?

Ans. Elnathan Peck, Peck & Walter, Peck & Walter M'f'g Co., J. B. Sargent & Co., Sargent & Co.

Int. 4. When did Sargent & Co. move their business to its present locality in New Haven?

Ans. In 1864.

Int. 5. Where had the business been conducted by its predecessors before that time?

Ans. New Britain, Conn.

Int. 6. Who had the management and control of the business at New Britain at the time of its removal to New Haven, in 1864?

Ans. J. B. Sargent.

Int. 7. When did Mr. Sargent come to New Britain to take charge of the business?

Ans. In 1856, I think.

Int. 8. What was your position at that time?

Ans. Foreman in the iron foundry.

Int. 9. How long after he came did you continue to act as foreman of the iron foundry?

Ans. I should think about one year.

302 Int. 10. In what capacity did you then act?

Ans. As the superintendent.

Int. 11. And have you continued to be superintendent from that time to the present?

Ans. I have.

Int. 12. Under what name was the business conducted at New Britain when Mr. Sargent came there in 1856?

Ans. Peck & Walter M'f'g Co.

Int. 13. Was the article of carriage-knobs among the manufactures of the company at that time?

Ans. They were.

Int. 14. If any change was made in the manufacture of this article after Mr. Sargent came to New Britain state when that change was made and in what it consisted.

Ans. Some time after he came there, when I was in the foundry, he came to me and wished I would see if I could make him some carriage-knobs equal to the English finish. I tried by varnishing them, but they were not as good. Mr. Sargent got me some English varnish, and wished I would try that; tried some of it and found it

was too thick, and didn't get the color I wanted. I thinned it down with spirits of turpentine, done them over very careful, very light, baked them, and they was brownish color; gave them another coat, baked them, and they were darker still; gave them a third coat and baked them and they seemed to be what he wanted.

Int. 15. What, if anything, was done to these knobs after they were cast and before the application of the first coating of this thinned varnish?

Ans. They were put into a lathe and polished.

Int. 16. You speak of the varnish as English varnish; was there any additional name by which it was known?

Ans. It was called brown varnish—English brown varnish.

Int. 17. What was the character of the recoatings as to thickness?

Ans. Made each coating very thin.

Int. 18. I call your attention to exhibits which have been put in evidence by the defendants, marked, respectively, "O O," "A B," "C D," and "E F." I also call your attention to the differences between the four outside and the six inside knobs,
303 on the last three of those exhibits, and, having reference to your last answer describing the mode of making English-finish knobs, tell us in detail what those exhibits respectively represent, beginning with Exhibits "O O."

Ans. "O O" represents the knobs as they appeared before there was any varnish put on them; they are a little rusty now, not quite as bright as they were; they were done last April. "A B," the six middle knobs, had one coating of English brown varnish and was baked about forty minutes at 430° Fahrenheit. The four outside knobs had nothing done to them except baked—had no varnish put on them. "C D" and "E F" were done the same as "A B;" then the six middle knobs had another coating of varnish, and were baked in the oven together at about 510° Fahrenheit; the outside knobs had nothing put on them. "E F," the six middle knobs, were coated the third time and baked; I don't remember how long they were baked; I have a memorandum made at the time. Witness refers to the memorandum. My memorandum says 45 minutes at 530° Fahrenheit.

Int. 19. How were carriage-knobs manufactured by the Peck & Walter Co. made and finished prior to Mr. Sargent's coming to New Britain?

Ans. They were rolled, japanned; I think they made some polished and japanned.

Int. 20. What kind of japan was employed?

Ans. Asphaltum japan.

Int. 21. How did the aggregate of these three coatings of English brown varnish, which you have described as being used in making and finishing the English-finish knobs, compare in thickness after being subjected to these several bakings, with the single coat on the knob japanned with the common asphaltum japan?

Ans. I should say it was less than half the thickness.

Int. 22. Will you please describe the locality and construction of the kiln which you used in baking these English-finish knobs?

Ans. Located in the yard back of the main shop—small building. Kiln was built of brick outside, lined with iron, leaving a flue space around the kiln from the bottom to the top; there was an arch furnace in the bottom.

304 Int. 23. What, if any, difficulty did you experience in making these English-finish knobs in the kiln which you have just described?

Ans. Could not get heat enough to make them as fast as I wanted to.

Int. 24. Was the heat you could get under its then construction sufficient for baking the common japanned knobs?

Ans. It was.

Int. 25. What alterations, if any, did you make in the kiln for the purpose of getting more heat for your English-finish knobs?

Ans. I removed the brick arch and put in an iron plate in place of it, and the fire came direct under the iron plate.

Int. 26. After these alterations were made did you succeed in getting more heat in consequence?

Ans. We did.

Int. 27. Before the alterations were made was the heat in any part of the furnace or kiln more intense than in other parts, and, if so, in what part was the heat the greatest?

Ans. Where the flue came under the arch and struck the iron I found it was the hottest.

Int. 28. What effect, if any, did this greater heat have upon the knobs located where the flues came under the arch and struck the iron as compared with the knobs farther removed from the flue?

(Objected to as leading.)

Ans. They were darker color.

Int. 29. You say that these knobs were baked in a kiln in the yard. Was there another kiln at any time put up, and, if so, will you please describe its locality and construction?

Ans. There was one put in the west end of the brass foundry, opening into a wooden building on the west end of the brass foundry. The fire was built in the kiln in the brass foundry.

Int. 30. What kind of fuel was used?

Ans. Lehigh coal.

Int. 31. From which building was the fuel supplied to the fire, from the brick foundry or the wooden building?

Ans. The brick foundry.

305 Int. 32. When was this kiln built?

Ans. 1857. At any rate it was before the hard times of 1857–8.

Int. 33. Do you recollect from what source any of the materials used in building this kiln came?

Ans. From Forrestville.

Int. 34. If any particulars occur to you in connection with the obtaining of those materials you may state them.

Ans. I went with a horse and wagon and two men over to For-

restville to load them I remember their being brought to the factory and built into the kiln.

Int. 35. Do you remember the name of the person, or firm, or corporation from whom these materials were procured?

Ans. I do not.

Int. 36. Do you know, or did you at this time know, a man by the name of Gebhardt?

Ans. I did.

Int. 37. What was his business at or about the time this new kiln was built?

Ans. He was ornamenting sewing machines for J. B. Sargent & Co.

Int. 38. Did he make any and what use of this kiln immediately after it was constructed?

Ans. He used it for baking his japan—for ornamenting work generally.

Int. 39. Did you make any use of it for your English-finish knobs; and, if so, to what extent?

Ans. I know they were made in them, but to what extent I could not say.

Int. 40. Were all parts of the knobs, while being subjected to the baking process, covered with these coats of English brown varnish of which you have spoken; and, if not, what parts were left uncovered during the heating process?

(Objected to as leading.)

Ans. The bottom wasn't covered.

Int. 41. What effect, if any, did the heating have upon this uncovered portion.

Ans. Turned them to a straw; from a straw to a blue color.

Int. 42. Do you know when those English-finish carriage-
306 knobs began to be manufactured, as you have described, in quantities sufficient to go into the market as articles of merchandise?

Ans. 1856.

Int. 43. Before or after you became superintendent?

Ans. Before, I think.

Int. 44. Can you tell about how long before you became superintendent?

Ans. Not a great while, I shouldn't think; can't say exactly how long.

Int. 45. In using the yard kiln had you any means of testing the degree of heat to which the articles were subjected?

Ans. None except the color of the iron.

Int. 46. How did the color of the iron enable you to fix the degree of heat to which the articles had been subjected?

Ans. My experience had taught me that iron which was heated would change its color; at a certain heat it would be a straw color, at a higher heat it would be a light blue, still higher heat it would be a dark blue.

Int. 47. When the new kiln, which we have called the Gebhardt

kiln, was put up in 1857 were there any means employed of testing the degree of heat to which the articles were subjected in that kiln?

Ans. I think they had a thermometer in there. I recollect Mr. Sargent's getting him one.

Int. 58. To whom do you refer when you say you recollect Mr. Sargent's getting "him" a thermometer?

Ans. Mr. Gebhardt.

Int. 49. Was any use, to your knowledge, made of this kiln by any person other than Mr. Gebhardt?

Ans. Mr. Brocksieper used it.

Int. 50. Do you mean Mr. F. W. Brocksieper, who has testified as a witness in this cause?

Ans. I do.

Int. 51. For what purpose did Mr. Brocksieper use this kiln?

Ans. He had the general charge of ornamenting hardware and used it for that purpose.

Int. 52. Will you please mention some of the articles for
307 the ornamenting of which Mr. Brocksieper used this kiln between the time of its construction and the time of his leaving the company, which he says was in 1859.

Ans. The work he used to finish were cupboard-catches, sash-fasts, coat and hat hooks, jamb-hooks, looking-glass frames, and a great variety of ornamental work which I couldn't describe now.

Int. 53. Did you see and examine coat and hat hooks, ornamented by Mr. Brocksieper by the use of the kiln, after they were removed from the kiln?

Ans. I did when they came to the packing-room.

Int. 54. Will you please look at the Defendants' Exhibits "G," "H," and "H²" and say to what extent they correctly represent the character and the color and finish of the articles so ornamented at that time by Mr. Brocksieper?

Ans. I should say they resemble them very much.

Int. 55. Do you remember what name was given to the ornamentation of articles like exhibits just shown you?

Ans. Antique.

Int. 56. Please look at the Exhibits "Art Castings No. 1 and No. 2" and see whether you do or do not recognize them as correct representations of articles manufactured at New Britain prior to the removal to New Haven?

Ans. I think they correctly represent what we used to make there. These were made in quantities while I was in the foundry.

Int. 57. Do you mean before you become superintendent?

Ans. I do.

Int. 58. Please tell us what you know about them.

Ans. I used to cast them, send them to be finished, and see them after they were finished.

Int. 59. About how many did you cast at a time?

Ans. About one hundred.

Int. 60. What kind of patterns were used—what was the material of the pattern?

A. Brass.

Int. 61. Are there any of these patterns which you then used while you were foreman of the foundry at New Britain still in existence?

Ans. There is. This is one of them. (Pattern is put
308 in evidence and marked "Art Casting Pattern No. 1." J. B. M., Special Examiner.) This is another. (Pattern put in evidence and marked Defendants' Exhibit "Art Casting Pattern No. 2." J. B. M., Special Examiner.)

Int. 62. Have you any other relics relating to this horse, "Art Casting No. 1?"

Ans. I have some of the stirrups here.

(Defendants' counsel puts stirrups in evidence, marked Defendants' Exhibit "Stirrups." J. B. M., Special Examiner.")

Int. 63. Are these the original stirrups cast for the purpose of being attached to horses, like Exhibit "Art Casting No. 1?"

Ans. They are.

Int. 64. If there was any peculiarity about these castings made for the Exhibits "Art Castings" state what it was.

Ans. These used to be finished up various ways—painted, japanned. We called them white, black, bay, and chestnut. When we commenced to make them we used to solder the stirrup on, and on some of the bronzed ones they found that it melted the solder. They attached a spring—a piece of brass—to the stirrup and put the stirrup in after the horse was bronzed.

Int. 65. You say, in answer to Int. 58, that after casting these art exhibits you sent them to be finished. To whom did you send them?

Ans. I sent them to the finishing shop. Mr. Brocksieper had charge of that then.

Int. 66. When these castings left the foundry for the finishing shop how did they compare as to smoothness or roughness with Complainant's Exhibit now shown and marked "Rough Castings?"

Ans. They were much smoother. Any as coarse as this exhibit we should throw into the scrap.

Int. 67. Was there another kiln afterwards built, while the business was carried on at New Britain, other than the Gebhardt kiln?

Ans. There was.

Int. 68. When was it built?

Ans. I should think it was in 1859; it might have been 1860; my opinion is that it was 1859.

Int. 69. Where was it located and how constructed?

309 Ans. It was built on the west end of the brass foundry, in a two-story building, in the upper story.

Int. 70. How was it heated?

Ans. By steam.

Int. 71. Have you been examined as a witness heretofore in a suit in favor of this same complainant, Hiram Tucker, against Burditt & Williams?

Ans. I have.

Int. 72. I see by reference to your testimony in that case that you

were asked this question, "After the change was made in the kiln of which you have spoken were there any and what structures erected affording better facilities for heating, and, if so, what were they and where constructed?" Your answer was, "In 1857, I think, Mr. Sargent made some more kilns and had these so arranged that they gave better satisfaction." I now understand you to say that but one kiln was erected in 1857, and the other was put up in 1859. Will you please explain the apparent discrepancy?

Ans. I had forgotten at the time that they were put up at two different times.

Int. 73. How was it as to the fact; did the Gebhardt kiln of 1857, heated by fire, give better satisfaction than the old yard kiln?

Ans. I think it did, as I heard no complaint of it from the men who worked in it.

Int. 74. How was it, in that respect, with the kiln of 1859, heated by steam; did that give better satisfaction, in its heating properties, than the Gebhardt kiln or the old yard kiln?

Ans. It did not.

Int. 75. What was the matter with it?

Ans. Didn't get sufficient heat. They complained about it not being hot enough.

Cross-examined by MR. LOOMIS:

Cr.-int. 76. In what year did you begin to work for the predecessors of Sargent & Co.?

Ans. I couldn't tell now. It is something like thirty-three years ago. I think it is thirty-three years ago last March—thirty-three or thirty-four—somewhere along there.

310 Cr.-int. 77. State fully the nature of your employment up to the time that the Peck & Walter M'f'g Co. was organized in the order in which you worked on the various things you did.

Ans. I first worked as a moulder for Elnathan Peck, then as foreman in his foundry, then for Peck & Walter, then for Peck & Walter M'f'g Co.

Cr.-int. 78. Did you work for the parties last named as foreman of the foundry only?

Ans. I couldn't say what time Mr. Sargent made me superintendent there; whether it was before he changed to J. B. Sargent from the Peck & Walter M'f'g Co. or when he was managing for the Peck & Walter M'f'g Co.; I couldn't say which now.

Cr.-int. 79. I understand that up to the time Sargent made you superintendent you had only been employed first as moulder and afterwards foreman of the iron foundry; am I right?

Ans. Sometimes I had been called on to superintend the making of blacking—japan, they called it—and looking after the engine and some other things.

Cr.-int. 80. What premises were occupied by the predecessors of Sargent & Co. when you first worked for them?

Ans. Wooden building on the upper part of Elm street; there was also a brick building there, too.

Cr.-int. 81. What other premises were occupied by them at New Britain, if any?

Ans. None by Peck & Walter; when the Peck & Walter M'f'g Co. was formed they moved to a brick building and some wooden buildings south end of Elm street.

Cr.-int. 82. Did Sargent's predecessors occupy any other premises in New Britain?

Ans. Not to my knowledge.

Cr.-int. 83. Are you able to fix, so that you can be certain about it, the year when Sargent came to New Britain and took charge of the Peck & Walter M'f'g Co.?

Ans. I am not.

Cr.-int. 84. Had carriage-knobs been made by the Peck & Walter M'f'g Co. more than one grade of finish before Sargent took charge of the business; and, if so, under what names had they been sold?

311 Ans. I think they tried to make some English finish. I don't know whether they ever succeeded or not.

Cr.-int. 85. Had you made any experiments for them in relation to English finish before Sargent took charge of the business?

Ans. I had not.

Cr.-int. 86. You say in answer to interrogatory 14, "Some time after he, Sargent, came there, when I was in the foundry, he came to me and wished I would see if I could make him some carriage-knobs equal to the English finish. I tried by varnishing them, but they were not as good." State fully your experiments with varnish referred to.

Ans. I took the knobs that were japanned, gave them a thin coat of varnish, and dried them.

Cr.-int. 87. What is the difference between the varnish you referred to as used in your first experiments and the English varnish Mr. Sargent procured?

Ans. The first I used was called copal varnish.

Cr.-int. 88. Describe more fully the experiment with English varnish, referred to in answer to interrogatory 14, where you say, "Mr. Sargent got me some English varnish and wished I would try that; tried some of it, and found it was too thick, and didn't get the color that I wanted." Was this also applied over black japanned knobs?

Ans. It was not. In the first place I polished the knobs, put some brown varnish on. It was too thick, and I thinned it down with spirits of turpentine; applied it with a brush, and found the color was a straw color, the darkest when it got the hottest. Then I gave them another very thin coat, baked them the second time, and found that improved them; still gave them a third coat, and baked them, and then they came very near the English-finished knob.

Cr.-int. 89. What do mean by the expression above quoted in regard to the English varnish: "Tried some of it, and found it was too thick, and didn't get the color that I wanted?"

Ans. It wasn't thinned down; it was too thick; made the coating too thick, and the color I wanted to get was a black.

Cr.-int. 90. Did you bake any knobs covered with undiluted English varnish, and did you mean that part of your answer as a description of any such baking?

312 Ans. I did.

Cr.-int. 91. Describe fully that experiment, stating when and where and how you baked such knobs, and what the effect was.

Ans. After coating them with this varnish I put them in the oven with the japanned work; had them baked; they were brown; the coating was too thick.

Cr.-int. 92. In what kiln was this baking done?

Ans. Back in the yard.

Cr.-int. 93. State fully all experiments you made in relation to that subject not before fully described, and give them in their order.

Ans. I might have made more experiments then. I cannot say now that I did.

Cr.-int. 94. Were these Exhibits "O O," "A B," "C D," and "E F," referred to by you in your answer to interrogatory 18, prepared by you?

Ans. They were not. They were prepared under my instruction. I saw them done.

Cr.-int. 94. Did you apply the English brown varnish yourself, personally, to any of them?

Ans. I did not.

Cr.-int. 96. Did you yourself open or shut the kilns or the ovens in which they were baked or regulate the heat applied?

Ans. I did.

Cr.-int. 97. Were the memoranda upon the card attached to the exhibit on card "A B," 40 M. 430°, 510°; on C D., 530°; on E F, to which you referred in testifying, made by you?

Ans. They was.

Cr.-int. 98. Were they made at the time the exhibits were prepared? If not, when?

Ans. I can't say when I put that number on. I took it from a memorandum I had in my pocket.

Cr.-int. 99. Will you produce the memorandum from which you made the memoranda on the exhibits?

Ans. (Witness takes it from his pocket and produces it, saying) I have carried it in my pocket ever since it was made.

Cr.-int. 100. Read it, please.

Ans. "Knobs A B" in kiln 40 minutes at 430° Fahrenheit. Knob "C D" don't know how long; the six middle ones, cov'd

313 E F, six middle knobs, three coats, 45 minutes, at 530° Fahrenheit. 4 | 27 | 80 P. B."

Cr.-int. 101. All these exhibits were prepared for the purpose of this case, were they not?

A. They was.

Cr.-int. 102. What is English-brown varnish; of what is it composed?

Ans. Do not know.

Cr.-int. 103. Please describe in detail the process of preparing carriage-knobs with asphaltum varnish used at Peck & Walter's before the improved process which you have described.

Ans. I don't know of any other process only japanning. I think they tried to make some English finish.

Cr.-int. 104. Describe in detail the process of japanning knobs as practiced by Peck & Walter at that time?

Ans. Gates were ground off after the sand was thoroughly rolled off; then they were japanned with asphaltum japan. That was all we done to them.

Cr.-int. 105. How was the japan applied?

Ans. It was poured on to them and they were stirred up in it; then they were left to drain, stuck on to sheet-iron pans, and baked.

Cr.-int. 106. Were the knobs heated before japan was applied?

Ans. They were not.

Cr.-int. 107. Was the asphaltum japan used clear or diluted?

Ans. Depended on how thick it was; if it was too thick we diluted it.

Cr.-int. 108. How was the asphaltum japan prepared and how was it diluted when it became thick?

Ans. Used to make it: take 60 lbs. asphaltum, five to six gallons boiled linseed oil, let it simmer for eight hours, thin it down with fourteen gallons spirits turpentine; when it became thick we diluted it with spirits of turpentine.

Cr.-int. 109. What degree of heat did you use in baking knobs covered with asphaltum japan?

Ans. Could not say; I never measured it.

Cr.-int. 110. Did you, in making English-finish carriage-
314 knobs, bake in the same kiln and at the same time the English finish and the common black japan knobs when you began to make them in the yard kiln, as you have testified?

Ans. I did. I placed the English-finish knobs near the flue, where it was hottest.

Cr.-int. 111. Did you not sometimes dispense with more than one baking the English-finish knobs?

Ans. Not to my knowledge.

Cr.-int. 112. What was the color of the common knobs after coated with japan and before baking?

Ans. It was dark brown, near on to black.

Cr.-int. 113. And what after baking?

Ans. Black.

Cr.-int. 114. What advantage had the English-finish knobs over the common knobs?

Ans. Coating on them was thin, and as they went to drive them in did not flake off. They were tough.

Cr.-int. 115. Did you ever know the Peck & Walter M'f'g Co. to sell knobs resembling Defendant's Exhibit "A B" in color and appearance?

Ans. I never did.

Cr.-int. 116. Do you remember the names under which different grades of the Peck & Walter's carriage-knobs were sold, testified to in answer to interrogatory 19?

Ans. I do not know what name they were sold under.

Cr.-int. 117. On what do you base your answer to interrogatory 21 when you state that the aggregate of these three coatings on the English-finish carriage-knobs is less than half the thickness of the single coat on the common asphaltum japan knobs?

Ans. I judge from the general appearance; that is all; shaving it off.

Cr.-int. 118. In your answer to cross-interrogatory 108, you say that one of the ingredients of asphaltum was "five to six gallons of boiled linseed oil." Describe the boiled linseed oil referred to.

Ans. It is thicker than the raw oil; same appearance in other ways.

Cr.-int. 119. Did you prepare this boiled linseed oil yourself; if not, where did you procure it?

315 Ans. The company bought it already boiled. I couldn't say where. It was called boiled linseed oil.

Cr.-int. 120. Was it the common boiled linseed oil of commerce, such as is used by painters?

Ans. I suppose it was.

Cr.-int. 121. How did you alter the yard-kiln for the purpose of getting a higher heat?

Ans. I removed the brick over the arch and laid an iron plate over it. The iron plate would take the heat direct from the fire.

Cr.-int. 122. Did this iron plate form the floor of the kiln?

Ans. Part of it.

Cr.-int. 123. What was the floor of the kiln before the iron plate was put in?

Ans. Sheet-iron. Over the fire there was a brick arch, and over that there was sheet-iron.

Cr.-int. 124. Of what was the rest of the floor of the kiln composed beside the iron plate which you put in after you took away the arch?

Ans. Sheet-iron.

Cr.-int. 125. How many years did you use this yard-kiln?

Ans. I could not say; but I should say up to 1859, perhaps later than that.

Cr.-int. 126. How many years did you use it for baking English-finish knobs—did you use it for that purpose after the Gebhardt kiln was running?

Ans. I couldn't say that we did or didn't; didn't have the immediate charge of japanning then.

Cr.-int. 127. When did you cease to have the immediate charge of japanning the English-finish carriage-knobs?

Ans. Didn't have the immediate charge of it any after my experiments.

Cr.-int. 128. Can you testify, then, of your own knowledge, that the English-finish carriage-knobs were ever baked in the Gebhardt kiln?

Ans. I cannot. I know they were sent out there and came back English-finish knobs.

Cr.-int. 129. Who built the Gebhardt kiln—what workmen?

316 Ans. I do not remember their names.

Cr.-int. 130. How large was the Gebhardt kiln?

Ans. I should think it was about five foot square; perhaps it might be a little taller than that.

Cr.-int. 131. Describe fully the way it was fired and heated.

Ans. There was an iron furnace, with its mouth towards the brass foundry; flue pipes running around the oven.

Cr.-int. 132. Dimensions of this furnace, please.

Ans. I should think it might be 2½ feet by eighteen inches inside.

Cr.-int. 133. Did it stand free of the wall?

Ans. All except the mouth of it.

Cr.-int. 134. Who was the kiln used by when it was erected?

Ans. By Gebhardt and Brocksieper.

Cr.-int. 135. How did this kiln differ from the kiln now in use for baking your English-finish carriage-knobs in New Haven?

Ans. What we use now the fire is under the kiln; we use a Boynton furnace; take the heat through the floor.

Cr.-int. 136. Have you continued the manufacture of the English-finish carriage-knobs from the time you have testified they were first made, and in the way you have described, up to the present time?

Ans. I think not.

Cr.-int. 137. Did you continue this process or method of producing what you call English-finish carriage-knobs until the business was removed to New Haven in 1864?

Ans. I couldn't say that we did; there was four or five years that we did not do much at carriage hardware.

Cr.-int. 138. What do you mean by your affidavit filed in this cause: "This process or method of producing what we call English-finish carriage-knobs was continued, and large quantities of knobs finished by this process were sold until the business was removed to New Haven in 1864?

Ans. We might have continued it up to that time; there was a few years then that we didn't pay as much attention to carriage hardware as we did to builders' hardware.

Cr.-int. 139. You have once said that you did continue it in your affidavit; do you wish to modify that statement?

317 Ans. I would. I should say—it might go back for a year or two before we came down here—that we did not make many, perhaps not any. I couldn't say.

Cr.-int. 140. Are you now able to state, then, that you made English-finish carriage-knobs up to 1862?

Ans. I should think we did later than that.

Cr.-int. 141. You go on to say in the same affidavit: "After I succeeded in the above process of coloring, new kilns were made as early as 1857, in one of which the above-described process of English-finishing was carried on." Do you desire to modify that statement?

Ans. I do. There was but one kiln built at that time.

Cr.-int. 142. You go on to say in that affidavit: "The new kilns were built in such a manner as to give great heat, and thermometers were used in one, or both, so as to indicate the temperature." At the time you made this affidavit, did you refer to the Gebhardt kiln in that statement?

Ans. I had forgotten about the Gebhardt kiln then, but knew there were two kilns there as late as 1859.

Cr.-int. 143. You desire to be understood in this statement last quoted as referring to the kilns built in 1859 now standing, do you?

Ans. There was three kilns, two upstairs and one down below. When I made that statement I had the three combined together. I had forgotten when the Gebhardt was put in.

Cr.-int. 144. What changes were made in the Gebhardt kiln and what kilns occupied that place while you were at New Britain? Describe fully all changes as you now understand them.

Ans. I don't know that there was any change made in it; they did not occupy that place; they were beyond.

Cr.-int. 145. Describe what was done.

Ans. The wooden building was moved away from the end of the brass foundry. In the top story there was two kilns, which was heated by steam.

Cr.-int. 146. When was this done?

Ans. I should say in 1859 or '60; somewhere thereabouts.

Cr.-int. 147. Were the kilns downstairs on the first floor used to your knowledge?

318 Ans. They were not—only the Gebhardt kiln.

Cr.-int. 148. What became of the Gebhardt kiln when the wooden building was moved away from the end of the brass foundry?

Ans. Still stood there at the end of the brass foundry.

Cr.-int. 149. What was its position with relation to the two steam-kilns, to which you have testified in answer to cross-interrogatory 145?

Ans. It stood in the end of the brass foundry still; it had no connection with the steam-kilns.

Cr.-int. 150. How long was it used?

Ans. I could not say. It might have stood there until we came down here. I don't think it was used till we came down here.

Cr.-int. 151. Please indicate, on Exhibit "Sargent Ground Plan" shown you, the place occupied by the Gebhardt kiln after the steam-kilns were put up.

Ans. The west end, adjacent to the brass foundry.

Cr.-int. 152. Please indicate, on "Sargent ground plan," by a square mark, the position of the Gebhardt kiln, as you say it stood after the steam-kilns were put up.

Ans. I have done so as nearly as I can recollect.

Cr.-int. 153. Were there any other kilns on the ground-floor under the steam-kilns?

Ans. I think not.

Adjourned until Thursday, January 27, 1881, at 10 o'clock a. m.

NEW HAVEN, *Thursday, January* 27, 1881—10 a. m.

Examination resumed. Parties present as before.

Cr.-int. 154. Who had charge of the manufacture of antique bronzed articles after Brocksieper left in 1859?

Ans. I think Mr. Smith did.

Cr.-int. 155. What is Mr. Smith's full name and where does he now reside?

319 Ans. I don't remember what his first name was, neither do I know where he is.

Cr.-int. 156. How long did Mr. Smith continue to have charge of the manufacture of antique bronzed articles?

Ans. He came to New Haven with me, but did not stay long; I don't remember just how long.

Cr.-int. 157. Enumerate the styles of finish to which the term antique bronze is applied.

Ans. I don't know but one.

Cr.-int. 158. That one, I suppose, is articles finished like "H," "H²," and "G."

Ans. Yes.

Cr.-int. 159. Did the manufacture of antique bronzed articles, like "H," "H²," and "G," by the Peck & Walter M'f'g Co. continue, as you have said, under the supervision of Mr. Smith from the time Brocksieper left in 1859 until the business was removed to New Haven in 1864?

Ans. There was a time we did not make much antique bronze; we might have made some.

Cr.-int. 160. State the years in which, in your opinion, manufacture of antique bronze was discontinued.

Ans. I couldn't give the exact date; after the war broke out we couldn't procure spirits of turpentine, which was very necessary in the manufacture of the articles, and at just what date, I couldn't say, it gave out; some time during the war and after its close for a spell.

Cr.-int. 161. You use spirits of turpentine in all processes of japanning, do you not?

Ans. No, sir.

Cr.-int. 162. Did you at any time cease japanning during the war or afterwards from lack of spirits of turpentine; and, if so, for how long?

Ans. Did not.

Cr.-int. 163. Did you say in your affidavit before filed in this case, "Coloring iron hardware by thin coatings of varnish and high heat continued as a part of the business of the company till the removal of the business to New Haven in 1864?"

Ans. I did.

Cr.-int. 164. Give the names of the contractors and work-
320 men who made this finish, antique bronze, in New Haven after you removed thither.

Ans. Soon after we moved D. T. Johnson took the job as soon as he was ready. He hired girls to do it.

Cr.-int. 165. Can you name any others?

Ans. Since his death his son has done it.

Cr.-int. 166. Under what name have Sargent & Co. sold this variety of goods since their removal to New Haven?

Ans. Most of it has been called Berlin bronze, Tuscan bronze.

Cr.-int. 167. Have they sold any of it under the name of imitation Berlin bronze?

Ans. I think they have.

Cr.-int. 168. Do you know any difference between the goods sold as Berlin bronze and the goods sold as imitation Berlin bronze in finish?

Ans. They are not polished as high—the imitation.

Cr.-int. 169. How is the difference in polish produced?

Ans. Some articles are polished on a wheel; others are scoured by emery-paper.

Cr.-int. 170. What way is the polish produced on the articles sold as imitation Berlin bronze?

Ans. Rolled in a barrel; sometimes they brush them.

Cr.-int. 171. Give the names of all the men and women that you remember in the employ of Smith, at New Britain, and engaged in making bronze antique finish.

Ans. Don't know any of the names. He was a contractor and hired all his own help.

Cr.-int. 172. Give the names of the parties employed here in New Haven in making antique bronze, if you remember any?

Ans. Don't know any of their names. I only knew them by sight.

Cr.-int. 173. Yet you were superintendent of the works, both at New Britain and here, were you not, and had, as you have said, oversight of all the work that was done?

Ans. I have the oversight of the contractors, not of their workmen.

Cr.-int. 174. When did D. T. Johnson take the job referred to in answer to Cr.-int. 164; in what year?

Ans. I should think it might be two, perhaps three, years
321 after we removed here. I shouldn't think it was more than that.

Cr.-int. 175. Had Johnson been employed by Sargent & Co., or their predecessors, previously to his taking this job referred to?

Ans. I think not.

Cr.-int. 176. Do you know by whom he had been employed before he came to the employ of Sargent & Co.?

Ans. I do not.

Cr.-int. 177. Would it refresh your memory on that point if you were told that said Johnson came directly from the employ of P. & F. Corbin, where he had been engaged in making Tucker bronze, for making which they, at that time, held a license?

(Question objected to as containing allegations of fact not in evidence in this case.)

Ans. I don't know that he ever came from there or ever was there. He was a coach varnisher.

Cr.-int. 177. Did the company make and sell any goods resembling in color and appearance and finish "H," "H²," and "G," in New Haven, and sell them under the name antique bronze to your knowledge?

Ans. I don't know that they have.

Cr.-int. 178. The only terms applied in New Haven were Berlin, Tuscan bronze, and imitation Berlin bronze, were they?

Ans. I think so; still I wouldn't swear they did not sell some as antique, since we came here; they might have done so.

Cr.-int. 179. How do you fix the date given in answer to 42 interrogatory?

Ans. It was soon after Mr. Sargent came to New Britain.

Cr.-int. 180. Who had the contract for making English-finish carriage-knobs at New Britain after your experiments were concluded?

Ans. Mr. Brocksieper had the general supervision of the finishing of the iron goods.

Cr.-int. 181. Did Mr. Brocksieper have the contract for making English-finish carriage-knobs?

Ans. He might not; I couldn't say now.

322 Cr.-int. 182. You can't say, then, who did have the contract?

Ans. I cannot tell.

Cr.-int. 183. Who has the contract now in New Haven for making English-finish knobs?

Ans. I think Mr. George Johnson has.

Cr.-int. 184. Who had it before George Johnson?

Ans. A man by the name of Mills had it one spell.

Cr.-int. 185. Is Mills now living in New Haven; what is his full name and address?

Ans. Don't remember either; I don't know whether or not he is now living?

Cr.-int. 186. In what year did he have the job?

Aus. I don't remember; it was soon after we came down here.

Cr.-int. 187. Do you know anything about the price paid contractors for making English-finish knobs at New Britain; how does it compare with that paid for the ordinary japanning of such knobs?

Ans. I do not remember the price; I think it was considerable more.

Cr.-int. 188. How did the price paid for putting on the finish known as bronze antique compare with the price paid for the various kinds of powder bronzing?

Ans. I couldn't say now; I think the powder bronzing was the highest; I couldn't give the prices now.

Cr.-int. 189. What proportion of the ornamental work sold by the company was finished by Mr. Brocksieper like "G," "H," and "H²" in color and appearance?

Ans. I couldn't tell.

Cr.-int. 190. Can you give any sort of an estimate of the quan-

tity of goods finished in this way and sold by the Peck & Walter Company?

Ans. I could not.

Cr.-int. 191. Did you ever see Brocksieper finish the goods like Defendants' Exhibits "G," "H," and "H²?"

Ans. I have seen him scouring them.

Cr.-int. 192. Did you ever see the whole process carried through?

Ans. I might; I couldn't say now.

Cr.-int. 193. Describe his process of making antique bronze.

323 Ans. I could not describe it more than I see him polish them.

Cr.-int. 194. How do you know that he used substantially the same process by which you had succeeded in coloring knobs in coloring other goods for the company?

Ans. Had the same appearance. I supposed he done them the same; couldn't say just how he done them.

Cr.-int. 195. When did Brocksieper first make goods such as you have described as made by him for the company; was it before or after your experiments with knobs?

Ans. Made some before.

Cr.-int. 196. Did you not say in your affidavit filed in this case that it was after your success with knobs that Brocksieper colored other goods for the company by substantially the same process? Do you wish to modify that statement?

Ans. I do. I don't remember of any hooks being done till after that, but art castings, looking-glass frames; there was some watch-stands, I think, that I saw. A number of other castings were made by Brocksieper previous to that which had the appearance of these present art castings.

Cr.-int. 197. Why didn't you say so in your affidavit?

Ans. I forgot about them.

Cr.-int. 198. Did you not specially refer to cast-iron looking-glass frames for toilet stands in that affidavit, and say that you bought one of them and had it for use in your family?

Ans. I did. I remembered that because I had had it so recently.

Cr.-int. 199. Did you not describe that looking-glass frame as colored by Brocksieper after your experiments with the knobs?

Ans. I might have done so.

Cr.-int. 200. When did the Peck & Walter M'f'g Co. first publish catalogues of the articles of hardware made and sold by them?

Ans. I do not know.

Cr.-int. 201. Have you in your possession any such catalogues?

Ans. I have not.

Cr.-int. 202. Are there any such catalogues, to your knowledge, in the possession of Sargent & Co.?

Ans. Don't know of any.

324 Cr.-int. 203. Did you say in your affidavit filed in this case,

"Coloring iron hardware by thin coatings of varnish and high heat, continued as a part of the business of the company till the removal of the business to New Haven in 1864, when it was discovered that no good results could be obtained by varnish and the high-

est heat that could be got in the ovens that Mr. Sargent had put in at New Haven?" Do you wish to modify that statement in any respect?

Ans. I do not. There was a time that we done but very little of it.

Cr.-int. 204. To what use was the first story of the building where the steam kilns were put in 1859 applied; I mean the part directly under the kilns?

Ans. As a passway to the Gebhardt kiln.

Cr.-int. 205. When the company removed to New Haven, in 1864, were new buildings erected for its use?

Ans. There was.

Cr.-int. 206. Had you anything to do with planning the arrangements of these new buildings?

Ans. I had.

Cr.-int. 207. Did you plan the ovens or have anything to do with planning the buildings for japanning?

Ans. I did with Mr. Sargent.

Cr.-int. 208. What kind of ovens were placed in these buildings for japanning?

Ans. Brick ovens.

Cr.-int. 209. How were they heated? What was the size and construction of them?

Ans. Heated by steam. Size, I should say about six foot square.

Cr.-int. 210. From whence did the steam come and how were the steam-pipes arranged in the ovens?

Ans. Came from the boilers right under the kilns. Pipes was coil pipes in the bottom of the kiln.

Cr.-int. 211. Were direct fire-heated kilns built and used at the time by Sargent?

Ans. Was not.

Cr.-int. 212. Were the kilns provided with thermometers, and, if so, what heat was employed?

325 Ans. They had thermometers; I don't remember the temperature now they could raise them at—the heat to.

Cr.-int. 213. What kind of finish did you apply to goods in New Haven besides black japan?

Ans. When we first came I don't know that we made any, except we might have made a few bronzed goods on the forge, as we generally done more or less at that.

Cr.-int. 214. You wouldn't say, then, that that branch of the business there was temporarily given up?

Ans. I would not say it was given up entirely; if a customer ordered a small lot we should try to make them for him one way or another.

Cr.-int. 215. Do you remember that you did make any such lots, or do you infer that you would have done it?

Ans. I don't remember that we did; I infer that we probably should.

Cr.-int. 216. How was it about the English-finish carriage knobs?

Ans. There was a time that we was out of turpentine that we did not pretend to make them.

Cr.-int. 217. Did you make English-finish carriage-knobs in the steam-heated kilns at any time?

Ans. I don't know that we did; I presume that we might have tried.

Cr.-int. 218. Did you ever use any substitute for spirits of turpentine in making these goods?

Ans. We have; we use benzine for diluting the varnish.

Cr.-int. 219. Did you use benzine at that time referred to in answer to cross-interrogatory 216?

Ans. I don't know that we ever used any benzine with English brown japan.

Cr.-int. 220. How long did you use these steam ovens after you came to New Haven before you put in fire-heated ovens again?

Ans. Not a great while; I couldn't say just how long.

Cr.-int. 221. In your previous deposition you suggested inside of three years—one of them at least; what should you say now?

Ans. I should say it was inside of three years; might have been inside of two; I could not tell exactly.

326 Cr.-int. 222. Until you took them out you used them in your general japanning, did you?

Ans. We did.

Cr.-int. 223. Did you make powder bronze goods for the first three years after you came to New Haven?

Ans. I think we did.

Cr.-int. 224. How large a number of hands were employed by Sargent & Co. in making them?

Ans. I think there was but one girl.

Cr.-int. 225. Do you remember her name?

Ans. I do not.

Cr.-int. 226. Who packed, at New Britain, these article of antique bronze for the market?

Ans. Mr. Gaffney had charge of the packing-room.

Cr.-int. 227 Can you state when the name "antique bronze" was abandoned by Sargent & Co.?

Ans. I cannot.

Cr.-int. 228. Can you give any reason why the name "antique bronze," as applied to a peculiar make of goods well known to their trade, should be abandoned by Sargent & Co. and the name "Berlin bronze" adopted for the same finish?

Ans. I cannot.

Cr.-int. 229. Can you give me the names of any other persons employed at the company between 1856 and 1864 not before mentioned?

Ans. John Ruff, Joseph Ruff, A. H. Steele, John Tracy, a man by the name of Kilburn, Wm. Allen, a man by the name of Porter—don't think of any others now.

Cr.-int. 230. Give the residences of Steele, Tracy, Kilburn, Allen, and Porter.

Ans. Steele lives in New Haven; Tracy, the last I knew of him,

he lived in New Britain; Kilburn lived in New Britain last I knew of him; Allen, Middle Haddam, the last I knew of him; Porter lived in Bristol, Conn., the last I knew of him.

Cr.-int. 231. Did any of these workmen make bronze antique finish; and, if so, who?

Ans. Not that I know of now; I don't know that they did.

Cr.-int. 232. Can you obtain a price list or lists of the goods made by the Peck & Walter M'f'g Co. between 1856 and 1864;
327 and, if so, will you produce them to be used as evidence in this case?

Ans. I don't know that I can; I have no knowledge of any.

Cr.-int. 233. What became of the oven you have referred to as yard kiln after the new ones were built? Was it still used?

Ans. I think it was, some.

Cr.-int. 234. Have you testified in answer to cross-interrogatory 297, in the case against Burditt and Williams, that the old oven was not used? "Int. 297. Did the old oven continue to be used after these new ones were built?" "Ans. It was not." Also "Int. 298. What became of it?" "Ans. It was torn down."

Ans. The idea I meant to convey, then, was that it was not in general use and that it was torn down soon—I couldn't say how soon—after the other kilns was built.

Cr.-int. 235. Was it then torn down in 1859, or about that time, or before?

Ans. I couldn't give the date.

Cr.-int. 236. Where did you bake the English-finish carriage-knobs after the steam-heated kilns were built, which you have testified was in 1859?

Ans. I think they was baked in the Gebhardt kiln.

Cr.-int. 237. Where did you bake the bronze antique after 1859? Was that baked in the Gebhardt kiln, which you have pointed out on the map, "Exhibit Sargent's Ground Plan?"

Ans. I think it was.

PURMONT BRADFORD.

Adjourned until Friday, January 28, 1881, at 10 o'clock a. m.

328 NEW HAVEN, *Friday, Jan. 28th*—10 a. m.

Examination resumed. Parties present as before.

JOHN C. HOECKH, a witness produced by and on behalf of the defendants, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for defendants, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. John C. Hoeckh; age, 41; reside in Meriden; occupation, burnisher and silver-plater of britannia ware.

Int. 2. In whose employment?

Ans. Meriden Britannia Company.

Int. 3. How long have you been in the employment of that company?

Ans. Nine years since I went there the last time. I worked there before.

Int. 4. Where were you born?

Ans. Germany.

Int. 5. When did you come to this country?

Ans. August, 1852.

Int. 6. Where were you first employed as a workman after your arrival in this country?

Ans. Peck & Walter M'f'g Co.

Int. Where was their business then carried on?

Ans. In New Britain.

Int. 8. When did such employment begin?

Ans. February, 1853.

Int. 9. How long did you remain in their employment?

Ans. Until 1858.

Int. 10. In what town was the business carried on at the time you left their employment?

Ans. New Britain.

Int. 11. When you first went into the employment of the company in what part of the town of New Britain was their manufacturing establishment located?

Ans. Northern part.

329 Int. 12. Was there any change made in their place of business while you were in the employment of the company?

Ans. Yes, sir.

Int. 13. Was this change within the same town or to another town?

Ans. Same town.

Int. 14. To what part of the town did they remove?

Ans. Southwest part.

Int. 15. About when, with reference to the time of your employment, was this change made?

Ans. To my best knowledge in the fall of 1853.

Int. 16. Was there a kiln for baking hardware on the premises to which the company removed when they first began work in their new location?

Ans. Yes, sir.

Int. 17. Where was that kiln located?

Ans. East part of the shop—in the yard.

Int. 18. Do you mean in the east part of any main building?

Ans. Yes, sir.

Int. 19. Describe that building where the kiln was.

Ans. It was a small wooden structure.

Int. 20. For what purposes, other than kiln-baking purposes, if any, was that small wooden structure used?

Ans. For baking of general hardware.

Int. 21. Do you know Mr. Purmont Bradford and Mr. F. W. Brockseiper?

Ans. Yes, sir.

Int. 22. When did you first know them?
Ans. 1853.
Int. 23. And where did you make their acquaintance?
Ans. In New Britain.
Int. 24. Were they in the employ of Peck & Walter Co. at the time you went there in 1853?
Ans. Yes, sir.
Int. 25. Were they still in their employ or that of their successors at the time you left in 1858?
Ans. Yes, sir.
Int. 26. Was there another kiln erected on the premises to which the Peck & Walter Co. removed before you left?
330 Ans. Yes, sir.
Int. 27. About when, as compared with the time you left in 1858?
Ans. About 1856.
Int. 28. Whereabouts on the premises was that new kiln located?
Ans. East of the main building.
Int. 29. How was it located with reference to the brass foundry?
Ans. It was attached to the brass foundry.
Int. 30. Can you describe at which end of the brass foundry it was located?
Ans. Yes, sir; south end brass foundry.
Int. 31. How was it heated; I mean by what material?
Ans. Coal; coal fire.
Int. 32. In what building was the mouth of the furnace into which the coal was fed?
Ans. In the building of the brass foundry.
Int. 33. In what building was the door of the kiln, giving access to the door of the oven, for putting in the things to be baked?
Ans. In the addition to the building of the brass foundry.
Int. 34. What kind of a building was that which you call an addition?
Ans. A wooden building.
Int. 35. Was that kiln which you have just described remaining on the premises at the time when you left in 1858?
Ans. Yes, sir.
Int. 36. Who used it principally between the time of its erection and the time you left?
Ans. Mr. Gebhardt and Mr. Brocksieper.
Int. 37. For what purpose did Mr. Gebhardt use it?
Ans. To bake sewing machines.
Int. 38. For what purpose did Mr. Brocksieper use it other than for baking sewing machines?
Ans. For the baking of general hardware.
Int. 39. Look at Defendants' Exhibits "Art Castings Nos. 1 and 2," and say when you first saw things like those; I mean like them in shape and color and style and finish?
331 Ans. In 1853 or 1854.
Int. 40. Where did you see them?
Ans. In New Britain.

Int. 41. Do you mean at Peck & Walter Co.'s factory, in New Britain?

Ans. Yes, sir.

Int. 42. Who finished such articles, at the time you named, giving them the color and appearance shown in these exhibits?

Ans. I finished them—like them. Mr. Brocksieper finished them.

Int. 43. Who do you mean to say finally finished the castings like these exhibits?

Ans. Mr. Brocksieper.

Int. 44. Did you, yourself, finally finish any of them?

Ans. No, sir.

Int. 45. Did you do any work upon these castings before they were finished by Mr. Brocksieper?

Ans. Yes, sir.

Int. 46. Under whose direction did you do this work?

Ans. Under Mr. Brocksieper's.

Int. 47. Will you please look at the exhibit now shown you, without reading the label attached, and say what stage of the casting of articles like "Art Exhibit No. 1" it represents?

Ans. It represents the appearance of a horse as it comes from the foundry.

Int. 48. Do you mean it represents the casting as it came from the foundry at the time that you worked upon the castings?

Ans. Yes, sir.

Int. 49. What did you do to this casting first?

Ans. Ground off the gate.

Int. 50. What did you next do to it?

Ans. Cleaned him off with a wire brush.

(The exhibit as to which the witness has testified in his last four answers is marked Defendants' Exhibit "Ruff Art Exhibit Casting from Mould.")

Int. 51. Will you please look at the exhibit now shown you, marked Defendants' Exhibit "Ruff Art Exhibit Casting," and
332 say whether or not it correctly represents the casting of "Art Exhibit No. 1" after the same had been cleaned off with a wire brush.

Ans. Yes, sir.

Int. 52. What did you next do to these castings?

Ans. Brightened up the prominent parts with sand or emery-paper.

Int. 53. After the castings had been thus cleaned and polished into whose possession did they go?

Ans. Mr. Brocksieper's.

Int. 54. Did you ever see Mr. Brocksieper finish any of these castings after they had been clean and polished as you have described?

Ans. Yes, sir.

Int. 55. But, as I understand it, you did not yourself finish any of them?

Ans. No, sir.

Int. 56. Were there any other articles of iron manufactured which, after being cast, you remember to have prepared for Mr. Brocksieper to finish?

Ans. Yes, sir.

Int. 57. What other such articles do you remember?

Ans. Coat and hat hooks.

Int. 58. What did you do to them?

Ans. Ground off the gate, drilled them and countersunk them, brightened them up—the prominent parts—with sand or emery-paper, put them on a block, and sized them ready for baking.

Int. 59. After you had drilled and countersunk them was anything done before using the sand or emery-paper?

Ans. They might have been rolled.

Int. 60. Did you superintend the baking of these coat and hat hooks or have anything to do with it?

Ans. No, sir.

Int. 61. Who did?

Ans. Mr. Brocksieper.

Int. 62. At the time that you were in New Britain and before you left in 1858 were you in the habit of visiting Mr. Brocksieper's house?

333 Ans. Yes, sir.

Int. 63. What occasion had you to go there?

Ans. I boarded there.

Int. 64. Do you remember a picture of any of his relations that was in the house?

Ans. Yes, sir.

Int. 65. Describe it and where it was located.

Ans. The picture was that of his father; located in front or sitting room—front room.

Int. 66. What kind of a frame did it have; I mean what was the material?

Ans. It was a square frame, iron castings.

Int. 67. Look at the exhibit now shown you, marked "Brocksieper's Picture-frame," and say how far, according to your recollection, it corresponds with the pattern and general appearance of the picture-frame referred to by you in your last answer.

Ans. Same as frame I now hold in my possession.

Cross-examined by Mr. Loomis:

Cr.-int. 68. Where did you work before you were employed by the Peck & Walter M'f'g Co.?

Ans. Nowheres.

Cr.-int. 69. What was the name of the firm when you first went to work for them?

Ans. Peck & Walter; Peck & Walter Co.; Peck & Walter M'f'g Co., if I am not mistaken.

Cr.-int. 70. Are you sure it was not Elnathan Peck?

Ans. Yes; I am sure of that.

Cr.-int. 71. How do you fix the date February, 1853?

Ans. Because it was the first time I started out to work in a shop; I went to school before.

Cr.-int. 72. Did you remain in their employment continuously from 1853 to 1858?

Ans. Yes, sir; I did.

Cr.-int. 73. Did you do any work — silver-plating when in their employ?

334 Ans. Yes, sir; I did.

Cr.-int. 74. What did you do when you first began to work for them?

Ans. Anything that I was told to do by Mr. Brocksieper.

Cr.-int. 75. Did you work for the company or for Mr. Brocksieper personally?

Ans. First I worked for Mr. Brocksieper; afterwards I worked for the company.

Cr.-int. 76. What year did you begin to work for the company?

Ans. That I couldn't recollect exactly.

Cr.-int. 77. State to the best of your recollection.

Ans. To the best of my recollection it might have been 1855, because I know I did work for the company in 1856. I am positive of that.

Cr.-int. 78. You were working for the company, then, when Mr. Sargent took charge, were you?

Ans. Yes, sir; I was.

Cr.-int. 79. What was the nature of your employment when you were working for the company?

Ans. About the same as before, only a little more advanced; filing, burnishing, turning, silver-plating, and working on their hardware. I mean to say some of the rest of it was brass work and some iron work.

Cr.-int. 80. Silver-plating is done upon brass and white metal, is it not?

Ans. Yes, sir.

Cr.-int. 81. Is it done on cast-iron?

Ans. It is now.

Cr.-int. 82 Was it then?

Ans. Not to my knowledge.

Cr.-int. 83. Upon what articles of cast-iron is silver-plating done now?

Ans. I don't know as I could exactly describe, but I have seen some in the Meriden Britannia shop silver-plating.

Cr.-int. 84. Can you silver-plate cast-iron?

Ans. No, sir.

Cr.-int. 85. What was the trade, if any, you went to work with Mr. Brocksieper to learn?

335 Ans. There wasn't no trade mentioned when I went to work there.

Cr.-int. 86. You were not his apprentice, then?

Ans. Not in a regular trade. I was apprenticed—doing all work that came along. If he was short of hands on one kind of work I

had to do it; and just the same on other kind of work, after I got so that I could do it.

Cr.-int. 87. What experience have you had in japanning?

Ans. No experience in japanning.

Cr.-int. 88. What experience have you had in producing an imitation of bronze on cast-iron?

Ans. I had no experience in it, only I saw it done.

Cr.-int. 89. Describe all the ways in which you have seen it done.

Ans. After it was brightened—what I call finished—the prominent parts brightened up, I saw it sized and got ready for baking.

Cr.-int. 90. Is that all you known about ornamenting cast-iron in imitation of bronze?

Ans. No, sir.

Cr.-int. 91. Make any further statement you can.

Ans. After some of this work was baked we sized them, or I sized them, and used different kinds of bronze, such as red, yellow, green, just as they was wanted.

Cr.-int. 92. That was the way you finished the bulk of your bronze work on iron, was it not?

Ans. There is the kind of work we finished (referring to Defendants' Exhibits "H," "H²," and "G") after they were baked.

Cr.-int. 93. Did you ever put the bronze powder on castings of the pattern of "Art Casting No. 1?"

Ans. Yes, sir.

Cr.-int. 94. In how many different ways did you ornament such castings?

Ans. Two or three different ways.

Cr.-int. 95. Describe them.

Ans. We sized some of the prominent parts; put yellow on some, some green and red, or some we done one color, just as to suit the taste.

336 Cr.-int. 96. Did you not paint them sometimes—I mean castings like "Art Exhibit No. 1?"

Ans. Not to my recollection.

Cr.-int. 97. Did you black japan them sometimes?

Ans. No, sir.

Cr.-int. 98. You are sure about that?

Ans. Yes, sir.

Cr.-int. 99. Describe the kiln you have first referred to in answer to interrogatories 16, 17, 18, and 19.

Ans. I couldn't give no better description of it than stated then.

Cr.-int. 100. What was the size of it?

Ans. That I could not tell what the size was.

Cr.-int. 101. Was it brick or iron?

Ans. Outside appearance brick.

Cr.-int. 102. You never worked in it or had anything to do with running it, had you?

Ans. No, sir.

Cr.-int. 103. How large was the building it was in?

Ans. It wasn't a very large building.

Cr.-int. 104. For what purpose was the building used?

Ans. Japanning.

Cr.-int. 105. Was the japan applied to the hardware before baking in that building?

Ans. I don't know.

Cr.-int. 106. How are you able to fix the year in which you say another kiln was erected on the premises?

Ans. At the time we commenced making sewing machines.

Cr.-int. 107. How do you fix the year you commenced making sewing machines?

Ans. By the time I left their employment.

Cr.-int. 108. You are sure that it was not in 1857 they commenced making sewing machines, are you?

Ans. Pretty sure, to my knowledge.

Cr.-int. 109. But you are not so sure that you would be willing to swear that it was one or the other of them?

Ans. I would to the best of my knowledge and belief.

Cr.-int. 110. I suppose you mean by that you are quite certain, but not absolutely certain, about the date?

337 Ans. I am sure of the year, but I wouldn't state what date it was—whether July or September.

Cr.-int. 111. Was that the year that Mr. Sargent came and took charge of the Peck & Walter Co.?

Ans. I believe he had charge of it before.

Cr.-int. 112. You say the new kiln was attached to the brass foundry. You say it was east of the main building. You say it was the south end of the brass foundry. How long a building was this brass foundry at the time the kiln was erected?

Ans. Couldn't tell how long it was.

Cr.-int. 113. How wide should you judge it was?

Ans. Couldn't tell how wide it was.

Cr.-int. 114. Was the kiln as wide as the brass foundry?

Ans. No, sir.

Cr.-int. 115. Was it not on the side of the brass foundry nearest the yard?

Ans. I think it was on the other side not nearest to the yard; the building was nearest to the yard.

Cr.-int. 116. What building?

Ans. The brass foundry and the wooden building the kiln was in.

Cr.-int. 117. You said in answer to Cr.-int. 115 the building was nearest the yard. You say the brass foundry and the wooden building the kiln was in, in answer to Cr.-int. 116. Will you please explain the relative position of the kiln and the wooden building as regards to the brass foundry?

Ans. I think I have explained.

Cr.-int. 118. Was the kiln in the brass foundry?

Ans. No, sir.

Cr.-int. 119. Was the kiln in the wooden building that stood next to the brass foundry?

Ans. Yes, sir.

Cr.-int. 120. In which side of the wooden building was it, in

reference to the yard—the side nearest to the yard or the more distant?

Ans. I think it was the side more distant from the yard.

Cr.-int. 121. I understand you, then, that the new kiln that you have described as built in 1856 was located in the corner of the wooden building adjacent to the south end of the brass foundry; am I right?

338 Ans. I believe you are.

Cr.-int. 122. What was in the end of the brass foundry adjacent to the wooden building containing said kiln?

Ans. There was what we called the core-room.

Cr.-int. 123. Who worked there?

Ans. Well, different persons.

Cr.-int. 124. Do you remember Gwatkins, an Englishman?

Ans. Harry Watkins, what we called him.

Cr.-int. 125. Did he work there?

Ans. Not in the core-room; he worked in the brass foundry.

Cr.-int. 126. What were the dimensions of this kiln?

Ans. I don't exactly know.

Cr.-int. 127. How was it heated?

Ans. With coal—coal fire.

Cr.-int. 128. Was it heated from below or by a furnace in the kiln?

Ans. Don't know what you mean by below; couldn't get under the kiln.

Cr.-int. 129. How was it heated?

Ans. By coal fire.

Cr.-int. 130. Where was the fire?

Ans. It was fed from the core-room.

Cr.-int. 131. Into what was the fuel from the core-room fed?

Ans. I never took no trouble to ascertain.

Cr.-int. 132. How do you know the kiln fire was fed from the core-room?

Ans. Because I seen some putting coals in.

Cr.-int. 133. Did you ever see anyone baking articles in that kiln?

Ans. Yes, sir.

Cr.-int. 134. Did you ever go in yourself to the kiln?

Ans. No, sir; I never went in the kiln.

Cr.-int. 135. Was it large enough for a man to go into?

Ans. I believe it was.

Cr.-int. 136. Did it have a coil of pipes or flues running around it—inside?

Ans. I don't know.

Cr.-int. 137. Do you know anything about the degree of heat that was used in that kiln?

339 Ans. No, sir.

Cr.-int. 138. How did it differ from a common japanning kiln?

Ans. Don't know, as I never examined either of them. I see a kind of a glass on this kiln, what they regulated the heat by, but I was not interrested in it at the time.

Cr.-int. 139. Do you say Mr. Brocksieper used this kiln for black-japanning general hardware?

Ans. No, sir; not black japanning.

Cr.-int. 140. He black-japanned sewing machines there, didn't he?

Ans. Not he, himself.

Cr.-int. 141. Who was the man that actually did the work of baking in that kiln, besides Gebhardt?

Ans. Mr. Brocksieper.

Cr.-int. 142. Did he do all this work himself, personally?

Ans. I believe he did the hardware work.

Cr.-int. 143. You have never been a practical japanner, you say; how, then, are you able to state so confidently that Defendants' "Art Exhibits Nos. 1 and 2" resemble in shape, color, style, finish, and appearance the goods made by Mr. Brocksieper so long ago as 1853 or 1854?

Ans. I can tell the difference in appearance between black and brown or white and red.

Cr.-int. 144. In your answer to interrogatory 50 you say you cleaned off these castings with a wire brush; will you please describe the wire brush such as you used?

Ans. I don't know as there was a particular appearance in a brush. It was made out of wire.

Cr.-int. 145. Was it made of wire set in a wooden back, or a bunch of wire tied together with wire, like a broom?

Ans. I don't believe it was either of them.

Cr.-int. 146. How was it made? Describe as well as you can how the brush was made, how the wire was arranged, and how it was fastened.

Ans. I believe it was fastened on a piece of leather and nailed on a piece of board with a handle like such as we used in the shop.

Cr.-int. 147. Did you use such a brush as that? (Referring to "Ruff tool No. 1.")

340 Ans. Similar to it.

Cr.-int. 148. Those brushes were in use as long ago as that?

Ans. Yes, sir; we used some of them as long ago as that.

Cr.-int. 149. Did you use them commonly for cleaning off iron castings as long ago as that?

Ans. Yes, sir.

Cr.-int. 150. How did Brocksieper finish the castings after you had cleaned and polished them; I mean castings like "Art Exhibits 1 and 2?"

Ans. Sized them and baked them.

Cr.-int. 151. You say that you worked ornamenting hardware baked like Defendants' Exhibit "Art Casting No. 1," with bronze powder; did you ornament black japanned hardware in imitation of bronze with powder?

Ans. Ornamented japanned hardware, and we ornamented some like this thing, too (referring to Defendants' Exhibit "Art Casting No. 1"); but when you say ornamented in imitation of bronze, I either take it this color (referring to same exhibit) or else japanned.

Cr.-int. 152. Did the goods made by Mr. Brocksieper, and baked

in the new kiln you have described, resemble in color and appearance and finish "Brocksieper picture-frame?" And if there was any difference between them and this, please state it.

Ans. No material difference; they may have been a little darker.

Cr.-int. 153. I understand you, then, that the new kiln that you have described as built in 1856 was located in the corner of the wooden building adjacent to the south end of the brass foundry, furthest from the yard of the factory; am I right?

Ans. Yes, sir.

Cr.-int, 154. In the affidavit of J. B. Sargent, filed in this case, he says: "In the following spring of 1857 I had a small brick building erected expressly for the purpose of heating kilns and the attending work, in which I had built two baking or heating kilns, each larger than the one before used, and with much better facilities for obtaining high heat." Are you able to recollect any such building?

Ans. Not brick building.

341 Cr.-int. 155. When you were employed by the Peck & Walter M'f'g Co. and before Mr. Sargent took charge did the company, in the manufacture of carriage-knobs, polish or burnish them in a lathe, to your knowledge?

Ans. I don't know whether it is before he took charge of it, but I worked at it myself personally.

Cr.-int. 156. Do you remember when you first began to work at it?

Ans. Not exactly.

Cr.-int. 157. You cannot state the year?

Ans. Might be 1855 or 1856; I wouldn't be positive, but I am positive I have done the work.

Redirect examination by Mr. BEACH:

R. D. Int. 158. In your answer to Cr.-int. 91 you say that after some of the work was baked you sized them and applied different colors of bronze, and in answer to Cr.-int. 92 you referred to certain exhibits on the table as being the kind of work thus finished; you referred to certain hat-hooks on the table mounted on a block; this reference was made by touching the block having on it the hat-hooks marked Exhibits "H," "H²," and "G;" was there another block having mounted upon it hat-hooks upon the same table with the block containing the exhibits "H," "H²," and "G?"

Ans. I notice there is two blocks there, but I hadn't examined the description of either of them.

R. D. Int. 159. Will you please now examine those two blocks and say to which you intend to refer as showing the additional ornamentation referred to in answer to Cr.-int. 191?

Ans. This one I had reference to (indicating block having on it Defendants' Exhibits "J," "J²," and "L.")

JOHN C. HOECKH.

342 JOSEPH B. SARGENT, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to

interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. Joseph B. Sargent; age, 58; residence, New Haven; occupation, manufacturer.

Int. 2. When did your residence in New Haven commence?

Ans. In April, 1864.

Int. 3. Where had you resided next prior to your removal to New Haven, and for how long?

Ans. I resided in New Britain for about nine years previous. I am not quite sure whether I went to New Britain to live in 1855 or 1856.

Int. 4. Assuming it to have been in 1856, where had you resided and what had been your occupation previous to that time?

Ans. My occupation and residence was in Brooklyn, N. Y. I carried on business as a merchant in New York.

Int. 5. What was the character of the articles with which you dealt when you carried on business as a merchant in New York for the few years next prior to your removal to New Britain?

Ans. American hardware.

Int. 6. What connection, if any, had your business with the goods manufactured by the Peck & Walter M'f'g Co., in New Britain, or by their predecessors?

Ans. I was their New York selling agent, and kept quite a large stock of their goods on hand.

Int. 7. Please look at the horse casting, marked Defendants' Exhibit "Art Casting No. 1," and say whether you recognize it as among the articles sold by you prior to your removal to New Britain, and, if so, from whom you received it.

Ans. Horses of this description, of this pattern and color, were kept by me in stock and sold as a regular article of sale, and were received by me first from Peck, Walter & Co. and then from Peck & Walter M'f'g Co., and perhaps as early as the time — Peck & Walter; I am not quite sure about that.

343 Int. 8. You say that the horses so sold by you were of the same pattern and color as this exhibit; how did they compare with the exhibit in their style and finish?

Ans. The style and finish of part of what we sold were precisely the same as that of this exhibit.

Int. 9. Were there any other horses of the same general character, finished in a different style, sold by you at the same time?

Ans. There were.

Int. 10. Please look at the exhibit, which is now put in evidence and marked Defendants' Exhibit "Art Casting No. 3," J. B. M., Special Examiner, and say whether you recognize it as being one of the styles, and sold by you as of the manufacture of the New Britain firm to which you have alluded prior to your removal to New Britain.

Ans. I do recognize it as one of the styles of finish I used to sell at that time.

Int. 11. What became your occupation upon your removal to New Britain?

Ans. I took charge of part of the business there. I attended somewhat to the manufacturing of the Peck & Walter M'f'g Co, and had general charge of the sale of their goods.

Int. 12. Was the Peck & Walter M'f'g Co. a joint stock corporation?

Ans. It was.

Int. 13. Speaking generally, what proportion of the stock of that company did you own at that time?

Ans. I believe that I owned about three-eighths of it when I went there and very soon purchased enough so that I owned about a half, more or less, I have forgotten which, and afterwards owned the whole.

Int. 14. Were carriage-knobs among the articles manufactured by the New Britain concern which you had been accustomed to receive from them and sell in New York prior to your going to New Britain to take charge of the concern?

Ans. They were.

Int. 15. Was any change made in the mode of manufacturing carriage-knobs, after you went to New Britain, as distinguished from the way in which they had been previously made?

344 Ans. We continued to make them in the old way and besides finished them in a different way.

Int. 16. How soon after you went to New Britain did you begin to have them finished in a different way from the one previously adopted?

Ans. I can't give the exact time, but it was immediately or very soon.

Int. 17. Will you please describe in detail this new process of finishing carriage-knobs to which you refer?

Ans. We took the castings after they came from the rolling-barrels connected with the iron foundry, and put each one separately into a rapidly-revolving lathe and smoothed off the surface with iron files, using usually rather fine files and somewhat worn; we then coated them—covered them—with a thin coating of English brown japan, which was usually or always put on with a brush, after having been well thinned down with spirits of turpentine; we then baked them standing in sheet-iron plates. These plates, with the knobs in, were put across iron bars in the baking ovens and subjected to a high heat, which gave them a straw color, or brown. They were then taken out, still standing on the sheet-iron, and had another coat of the thin varnish brushed over them, and then subjected to another high heat, which, if sufficiently hot, turned them black. They were often subjected to a third heat, and, I think, to a third varnishing, to make them black, and sometimes, when the heat was not sufficient and they were purple in color, they have had to undergo—a part of them—still a further heat; but I think the usual course was to give them two bakings only.

Int. 18. Was there any part of the knob thus put on to the sheet-iron plates while being baked uncovered or uncoated by the varnish?

Ans. I think the rule was not to cover the bottom at all—the under side.

Int. 19. What effect, if any, had the heat at which the knobs were subjected on that part of the knob not covered by the varnish?

Ans. My recollection is that the under side of the knob was subjected to such a high heat as to have a purplish tinge or bluish, or it required three bakings. When the heat gave it a straw color, they required three bakings.

345 Int. 20. What name was given to knobs finished in this way?

Ans. English-finish knobs.

Int. 21. Were they sold as such in the market?

Ans. They were.

Int. 22. How did the aggregate thickness of these several varnish coatings on the knobs, after they were baked, compare with the ordinary thickness of coating on the knobs when made in the old way?

Ans. Made in the old way one could take a knife and cut off the Japan; made in the new way, there was no material coating to cut off.

Int. 23. What advantage, if any, had the English-finish knob over the knob japanned with asphaltum mixture?

Ans. The knob japanned in the old way with asphaltum blacking was easily marred on the head by driving into the wood of the carriage bow and clinching it, making the japan sometimes flake off, while in the English knob that we made there was no objection of that nature, the coloring or blacking having no thickness in substance.

Int. 24. When you went to New Britain in 1856, if that was the year, was there a kiln on the premises?

Ans. There was.

Int. 25. Where was it located?

Ans. In the yard in the rear of the main factory building.

Int. 26. Was there another kiln put up after you went there?

Ans. There was.

Int. 27. When was that kiln erected?

Ans. That kiln was erected in 1856 or 1857; I think now it was erected in 1856.

Int. 28. Will you please describe its construction and its location, and state any surrounding facts enabling you to fix such construction and locality, if there are any?

Ans. It was placed either at the west end of the brass foundry, with a door leading from the oven to a building placed at the end of the foundry and outside of it, or it was placed in the wooden building, with the door through which the furnace was fed, and the door under the furnace door for the ash pit, opening into the brass foundry building, so that the furnace was fed with fuel and

346 the ashes taken out from under the furnace inside the brass

foundry building—that is, I am not sure on which side of the northwest wall of the brass foundry it projected. The furnace was placed inside the oven, and fed with fuel, as before stated, from the brass foundry; an iron pipe led from the furnace around inside the oven to the door and then back again—I don't remember how many times, how many coils—and then passed off into some chimneys. Inside the oven were perpendicular iron bars, from which projected hooks, and on these hooks was laid, when in use, iron bars, I think about ⅛ of an inch square—that is my impression—and on these bars the work that was to be baked was either set or hung by means of cross-wires and wire hooks.

Int. 29. In what building was the door of the kiln giving access to put things into the oven to be baked?

Ans. It was in the wooden building standing at the west end or northwest end of the brass foundry building and south or southwest of the main factory building.

Int. 30. Do you remember whether that wooden building, at the time of the erection of this kiln, was built as a new one or not?

Ans. The building that was first removed there to that place was an old one and was used for japanning, ornamenting, and coloring, while the baking was done in the kiln in the yard.

Int. 31. What was the occasion of your building the new kiln?

Ans. It was on account of want of room in the kilns in the back yard. We made a contract with Watson & Wooster, of Bristol, to make—I think the first contract was ten thousand sewing machines, and it was necessary to have more kiln room to conveniently japan and bake them.

Int. 32. Do you remember who had the general superintendence of the japanning and baking of these sewing machines?

Ans. A Mr. Gebhardt.

Int. 33. Under whose supervision was this new kiln built?

Ans. Under the supervision and according to the request of Mr. Gebhardt.

Int. 34. About when did Mr. Gebhardt come into the employment, in any way, of your company?

Ans. I think it was early in 1856; spring or summer of 1856, I think. I can't remember exactly.

347 Int. 35. Had his coming into your employment any connection with the contract for the ten thousand sewing machines which you have mentioned?

Ans. His coming into our employ and the contract were almost coincident, but I am not sure whether the contract was made first or whether he came into our employ first.

Int. 36. Where had Mr. Gebhardt lived and what had been his business prior to his coming into the employ of your company?

Ans. He had lived in Forrestville, Conn., a few miles west of New Britain, and he had been employed by F. S. Otis, of that place, in japanning and ornamenting cast-iron clock-fronts.

Int. 37. Do you remember where any of the materials used in building this new kiln came from?

Ans. I do.

Int. 38. Please tell us what you remember about it.

Ans. Mr. Gebhardt complained to me of the insufficiency of room in the old kiln in the yard and of some clashing in the heat required at different times in different stages of his work, he not wanting for his work the same heat on all occasions that was necessary on other work made by the company occupying the baking-kilns at the same time. He expressed a strong desire to have a new kiln built for his own use in his own work. He told me that he knew of a set of kiln-irons and equipments, including the furnace, as I believe, that was out of use where he had worked in Forrestville, which could be bought at a reasonable price, as he stated. I took him with my horse and buggy and drove over to Forrestville. I saw the kiln-irons and purchased them, and the next day, I believe, I sent for them, and they were brought to New Britain.

Int. 39. And were these kiln-irons used in constructing the new kiln which we have called the Gebhardt kiln?

Ans. They were.

Int. 40. Do you remember when Mr. Gebhardt left the employment of your company?

Ans. I am quite sure that it was in 1857.

Int. 41. Was he ever afterwards employed by them?

Ans. I think not. He remained in New Britain for some time, but I think not in the employment of the company.

348 Int. 42. In connection with this Gebhardt kiln, was there any provision made for ascertaining the degree of heat to which the articles were subjected during the process of baking them?

Ans. There was.

Int. 43. What was it?

Ans. There was a slot or recess either in the kiln door or in the wall, at the side of the door, I forget which, protected from the outside by glass and open to the inside, where a thermometer hung.

Int. 44. Could the degree of heat, as registered by this thermometer, be read from the outside?

Ans. It could through the glass that I before mentioned.

Int. 45. How high a degree of heat was the thermometer capable of registering?

Ans. As high as 600° Fahr.

Int. 46. Do you remember whether you had at any time occasion to replace the old thermometer with a new one?

Ans. I did.

Int. 47. And for what reason?

Ans. Because, as was stated to me, the tube of the thermometer burst while hanging in its place and in use.

Int. 48. Was there still another kiln or kilns put up by the company on the premises in New Britain prior to its removal to New Haven?

Ans. There were other kilns.

Int 49. Where were they located and what was their construction?

Ans. At the end of the brass foundry a brick building was added

to or joined on to the brass foundry, in which there were large arched recesses against the wall dividing this building from the brass foundry, two of them being located on the lower floor and two on the upper floor, immediately up over the lower ones. The two upper recesses were used for baking ovens.

Int. 50. How were these upper recesses or ovens heated?

Ans. They were heated by steam.

Int. 51. At which end of the brass foundry was the brick building erected?

Ans. At the end towards Elm street; I should call it the northwest end.

349 Int. 52. In what year was this new brick building put up?

Ans. I think it was in the fall of 1859.

Int. 53. Do you know Mr. F. W. Brocksieper?

Ans. I do.

Int. 54. What connection, if any, had he with the business carried on by the Peck & Walter M'f'g Co. when you first went to New Britain, in 1855 or 1856?

Ans. He was employed there as workman or contractor; if as workman, as a foreman also.

Int. 55. How long, after your coming to New Britain, did he remain with the company in the capacity of either workman or contractor?

Ans. As late as 1859, to the best of my memory. I am sure as late as that.

Int. 56. Did he leave the company before, or after, the brick building was erected in which the steam kiln was located?

Ans. I can't say whether he left before or after, but it was about that time.

Int. 57. Did he have any occasion, while he continued in the employ of the company, to use a kiln in making the articles upon which he worked, or the making of which he had charge?

Ans. He did.

Int. 58. What kiln or kilns did he use for this purpose?

Ans. I think he used the kilns in the yard at first, and afterwards the kiln built under the direction of Mr. Gebhardt.

Int. 59. You say that in the Gebhardt kiln a thermometer was placed capable of registering up to 600° Fahr. Were there any articles of builders' hardware manufactured by your company at New Britain, and while Mr. Brocksieper remained in its employ, in the making of which a high degree of heat was required?

Ans. There were.

Int. 60. Will you please enumerate them, or some of them?

Ans. There were coat and hat hooks, sash-fasteners, jamb-hooks, cupboard-catches, and I remember some turn-buttons that were made.

Int. 61. For what purpose, speaking generally, were these articles subjected to this high degree of heat?

Ans. To give them a bronze color in connection with var-
350 nish or size, as it was called, which was brushed over them before baking them.

Int. 62. What name was given to this kind of ornamentation at that time?

Ans. Antique bronze.

Int. 63. In order that we may understand more clearly at what stage of the process of ornamentation this high degree of heat was applied, will you please describe in detail the process of ornamenting the goods with the finish you called antique bronze.

Ans. The castings were made in the iron foundry and were cast in moulds of sand, in which, or on which, was a facing sand composed, generally, I think, of finely ground sea coal, as it was called, which, I suppose, is common anthracite coal. By using this facing on the moulds the castings required little or no tumbling to get the sand off. After the sand was cleaned from the casting, either by gentle tumbling with other small castings or brushed by wire brushes to get the sand out from the more sunken parts, the more prominent parts of the castings polished with sand-paper or emery-paper, they were then covered with a thin coat of size, as we called it, which was composed of varnish with spirits of turpentine to thin it, and, I believe, a little linseed oil. A thin coat of this was put upon the article, and, in case of the coat and hat hooks and jamb-hooks, after they were fastened on a little wooden block, held on it by a little wire spring—I forget the exact form of it—they were then, after drying a little, as I believe, dried a little, enough to handle them, they were put into the kiln and subjected to a high heat, such a heat as often turned the under side of the casting where the gate had been ground off a purplish blue, but usually to a straw color, I think. That completed the process of making what we called antique bronze.

Int. 64. Was any other or further work in ornamentation done in connection with the goods known as antique bronze upon any portion of the product of the manufacture of the company?

Ans. A part of them were taken and had this same sizing put upon the prominent points; then they were set aside to dry
351 partially, as I remember, just so the finger would adhere a little to the varnish when touched, being called sticky, when they had on the varnished places or high points a little gold-colored bronze touched on them.

Int. 65. What name was given to the goods to which this additional ornamentation was applied?

Ans. We used to call them "antique and gold" bronze, and, I think, sometimes in speaking of them, they were called "dark and gold."

Int. 66. Will you please look at the exhibits on the table—one marked "G," "H," and "H²," one marked "J," "J²," and "L," and two marked "Brocksieper Sash-fastener"—and say how far they correctly represent the articles made by the Peck & Walter M'f'g Co. between the time of your going to New Britain and Mr. Brocksieper's leaving the employment of the company—referring, if you please, to each exhibit by itself?

Ans. Exhibits "G," "H," "H²" represent correctly the antique bronze hat-hooks and jamb hooks made by the company. Exhibits "L," "J," "J²" represent the "dark and gold" or "antique and

gold" bronze, as we most generally called them, made by the company, except that some of the gold bronze on the higher points seems to have been worn off by handling. The sash-fasteners marked "Brocksieper Sash-fasteners" correctly represent the sash-fasteners made by Peck & Walter M'f'g Co. or J. B. Sargent & Co. during that time.

Int. 67. After these goods corresponding with these exhibits were manufactured what was done with them?

Ans. They were packed up in the packing-room and sent to market when wanted.

Int. 68. How early did you yourself see in the market for sale coat and hat hooks and jamb-hooks like Exhibits "G," "H," and "H²" and "J," "J²," and "L?"

Ans. Immediately after they were made—as early as 1857, I think, without doubt.

Int. 69. And where did you so see them?

Ans. I have carried samples of them myself to make sales with, and we had them in the store in New York on the shelves and samples on the sample boards there.

352 Cross-examined by MR. LOOMIS:

Cr.-int. 70. You say that before you come to New Britain you lived in Brooklyn and carried on business in New York. Were you in business alone then? If not, with what firm were you connected?

Ans. I was in business alone, having no partner, until about the time I came to New Britain.

Cr.-int. 71. How long had you been in business alone before you came to New Britain?

Ans. I had a partner in 1850, and the firm was then Sargent & Boggs. I think that partnership lasted only about a year, and I was alone until I took in my brother as partner, which was not long before I came up to New Britain; it might have been a year previous.

Cr.-int. 72. Is your partner first named living?

Ans. No, he is not.

Cr.-int. 73. Is your brother, your second partner, living?

Ans. Yes; George H. Sargent, of New York.

Cr.-int. 74. How many clerks and salesmen did you employ in New York between 1850 and 1855?

Ans. We employed my brother and myself and porters and boys mostly besides—not more than four or five of us altogether.

Cr.-int. 75. Where was your place of business?

Ans. 24 Cliff street at first, upstairs; then 85 Beekman street, either immediately before or immediately after I came to New Britain.

Cr.-int. 76. Did you continue any connection with the New York house after you removed to New Britain?

Ans. I remained a partner.

Cr.-int. 77. Did you employ any traveling agents or salesmen before you came to New Britain while doing business in York York?

If yes, please give the names in full and their addresses, if you know them.

Ans. My brother George and myself did all the traveling; we had no other traveler.

Cr.-int. 78. Give the names of any clerks, porters, or boys, or book-keepers then in your employ in New York and their addresses, if you know them.

353 Ans. We had a book-keeper by the name of Daniel MacFarland, whose address is, I believe, Framingham, Mass. We had another book-keeper, whose name was A. P. Butler, I believe—I think those were his initials—of New York city. We had a young man named Wilson—a boy rather—whose address I know nothing of. We had a porter named James Dempsey and another porter named Dempsey, both living in New York the last I heard of them. Another young man was with us as clerk and salesman, named Thomas J. Atkins, of Brooklyn, N. Y., who came with us before I left or immediately after, I can't say which. There may have been others, but I don't remember them.

Cr.-int. 79. Did you do a wholesale or a wholesale and retail business?

Ans. Wholesale only.

Cr.-int. 80. Your sales were made in what parts of the United States?

Ans. In all parts.

Cr.-int. 81. Have you any book or books of your then concern now in your possession showing the names of the parties to whom you sold?

Ans. I have not.

Cr.-int. 82. Are any such books in existence; if so, in whose possession?

Ans. I know of no such books in existence.

Cr.-int. 83. Do you know that they are not in existence?

Ans. To the best of my belief they are not.

Cr.-int. 84. To what class of customers and for what purposes did your then concern sell castings like "Art Castings No. 1?"

Ans. I sold them mostly to dealers in carriage, saddlery, and harness hardware.

Cr.-int. 85. Did you, yourselves, then deal in carriage, saddlery, and harness hardware other than those castings?

Ans. We did.

Cr.-int. 86. Name, if you please, the concerns in New York city to whom you sold the goods like "Art Casting No. 1?"

Ans. I can't remember ever selling any particular article to any particular purchasers so long ago as that time.

354 Cr.-int. 87. Can you name the dealers in carriage, saddlery, and harness hardware in New York city, or any of them, at that time to whom you were in the habit of selling such goods?

Ans. Abram R. Van Nest & Co. He also had a brother in business whose name I forget. There is a concern who are now on Beekman street whose name I forget. There is a concern to whom we used to sell goods named Swift & Seaman, but I am not quite sure that the

time was so far back. The sales of these goods made by the Peck & Walter M'f'g Co. and Peck, Walter & Co. of that particular description, the kind that went to carriage, saddlery, and harness hardware dealers, were made by Elnathan Peck, of New Britain, prior to the time I went to New Britain to reside.

Cr.-int. 88. Can you give us any more New York concerns?

Ans. I don't remember the names at this late day, there having been so many changes in the constructions of the firms and the names of the firms.

Cr.-int. 89. To what principal cities did you travel in making sales of goods? Please name the principal concerns in these cities with whom you had dealings and to whom you would have been likely to sell such goods as "Art Exhibit No. 1."

Ans. I went to Philadelphia, Baltimore, Washington, Alexandria, Georgetown, D. C., Richmond, Petersburgh, Wilmington, N. C., Charleston, Savannah, Augusta, Macon, Mobile, New Orleans, Nashville, Louisville, Cincinnati, Pittsburgh, Cleveland, Chicago, Montreal, Albany, and Troy, and a great many other smaller places. I should think Erastus Corning & Co., of Albany; Pruyn, Vosberg & Co., of Albany. I don't remember the names of the saddlery houses West at that time. I think we might have sold to Dunn & Spencer, [of] Petersburgh; E. N. Lenthicome, of Georgetown, D. C. It is impossible for me to recall positively the particular firms or persons to whom I sold those goods, but I remember that they often declined to pay for them after buying it, saying that they had put it in their own window as a sign, and given them away to their customers.

Cr.-int. 90. Will you name any concerns in Philadelphia to whom you sold such goods?

355 Ans. I can't recall the names of any of our customers for carriage hardware in Philadelphia. I believe there is no concern now in existence that existed then; but with two houses there we had quite extensive dealings, considering the small amount of goods in the line we made, one of which was located on Third street and the other on Fourth street. The Peck & Walter M'f'g Co. had an agency in Philadelphia, where a small stock of these goods were kept.

Cr.-int. 91. What is the name of that agent; is he now living; what is his address?

Ans. We had two agents at different times. One was N. L. Hart or N. L. Hart & Co. and the other was a man by the name of Andrews, both of whom, I understand, are dead, but the partner of N. L. Hart is a Congregational minister in Fair Haven at the present time; I am not positive that he was a partner of N. L. Hart at that time; his name is Rev. Burdett Hart.

Cr.-int. 92. Had the Peck & Walter Co. agencies in any other cities?

Ans. They had an agency in Boston, the agent being named Kellogg, and they also had an agent in Baltimore, whose name I don't remember.

Cr.-int. 93. Do you remember the names of any concerns in Boston to whom such goods as "Art Exhibit No. 1" were sold?

Ans. I do not.

Cr.-int. 94. What name did you apply to the finish like that on "Art Exhibit No. 1" before you came to New Britain?

Ans. It was called bay horse by Mr. Peck—Elnathan Peck. I, myself, used to call it more often in selling it the chestnut horse.

Cr.-int. 95. Was it your habit in those days to sell by sample, or from book or catalogue?

Ans. In the store always by sample and in traveling we carried more or less samples, but had catalogues.

Cr.-int. 96. Did the Peck & Walter concern have printed catalogues at this time?

Ans. I think they did; they did.

Cr.-int. 97. Are you able to procure any copy of such catalogue, and, if so, will you do so?

356 Ans. I can, back to a certain date which I don't remember. I know of none of the ones of earlier dates now in existence.

Cr.-int. 98. Will you produce those which you are able to produce?

Ans. I will.

Cr.-int. 99. Were any other goods finished like "Art Casting No. 1" at that time, before you went to New Britain, to your knowledge; I mean in color and appearance and finish?

Ans. I was not aware of any being finished by the Peck & Walter M'f'g Co. before I went to New Britain, except the horse and perhaps coat and hat hooks and jamb-hooks and picture-frames I am certain of being finished before I went to New Britain, and I am also certain that "Art Casting No. 2" and another art casting of about the size of "Art Casting No. 2," representing St. George on horseback spearing a dragon lying under the horse. There were several other art castings, of which quite a number were on hand when I went up to New Britain, but I cannot recall what they represented; they were similar in workmanship and general character and the same kind of finish as "Art Castings No. 2 and No. 1."

Cr.-int. 100. I observe that you limit your answer to cross-interrogatory 99 to goods made by the Peck & Walter Co. I will repeat the question: Had you seen that finish on goods other than those made by the Peck & Walter concern at the time referred to?

Ans. I remember while I did business in New York that I was in New Britain and inquired particularly how the finish of "Art Casting No. 1" was done, and that makes me think I couldn't have known of other goods being made with the same finish, as it was novel to me at the time.

Cr.-int. 101. You remember no general term applied to the finish which you say you saw on other art castings?

Ans. I don't remember.

Adjourned until February 15th, 1881, at 10 o'clock a. m.

357 Hearing further adjourned until Feb. 22d, 1881, at 10 o'clock a. m.

NEW HAVEN, *February* 22, 1881.

Examination resumed at 10 o'clock a. m. Parties present as before.

Defendants' counsel puts in evidence match-boxes marked Defendants' Exhibit "Match-boxes," J. B. M., Special Examiner, to be identified hereafter, as being one of the match-safes referred to by Mr. Brocksieper in his answer to cross-interrogatory 126 and cross-interrogatory 211.

Cross-interrogatory 102. Have you been able to procure a book or catalogue of the Peck & Walter concern used by your concern in selling hardware; if so, will you please produce it?

Ans. Here is a book dated 1855, which is of the earliest date of anything that I know of in existence, and another one of 1859, which was printed in 1858, the latter part of the year, to be issued Jan. 1, 1859.

Cr.-int. 103. Do you find in the first of these catalogues the finish to which you have testified as known as bronze antique referred to? If so, please point out the pages on which such reference is made.

Ans. This book, dated Jan., 1855, was printed in late autumn of 1854, before we had manufactured much, if any, general hardware of that description except the horse, "Art Exhibit 1," and possibly some picture-frames and some fancy articles, which Mr. Brocksieper finished over the forge. This book was printed before we made English-finish carriage-knobs in the manner before described and before we built what has been called the Gebhardt kiln, and before, to the best of my memory, any bronzing by high heat and oil or varnish had been made except over the blacksmith's forge, and those goods being made in small and irregular quantities at that time were not put into any price book, but, when sold, sold from samples. For this reason no goods were listed as "antique bronze."

358 Cr.-int. 104. Are the art castings like Defendants' Exhibit "Art Casting" referred to in this book?

Ans. They are not.

Cr.-int. 105. Were you, at the time this catalogue was issued, in New York, or had you removed to New Britain and begun to engage in manufacturing there?

Ans. My place of business was in New York, but I was a stockholder in the company and one of its directors.

Cr.-int. 106. Had you at this time gone to live in New Britain?

Ans. I had not.

Cr.-int. 107. On what variety of goods, at the time this catalogue was issued, do you know the finish like that upon Defendants' Exhibit "Art Casting No. 1" to have been used?

Ans. I am not sure, of my own knowledge, that that finish was used on anything but "Art Casting No. 1" at that time.

Cr.-int. 108. Describe the finish referred to, on page 27, as a part of the description of jamb-hook there called "bronzed."

Ans. At that time we made three styles; one style was painted a dark green, and then the prominent points, after being sized and partially dried, were touched up with gold bronze, which we used to call green and gold bronze; another style was first to japan the goods and then size the prominent points and touch them up with gold bronze, which we called black and gold bronze; another kind was to be gold bronzed all over, which we called all gold bronze, or sometimes simply gold bronze, all being sold, I think, at the same price.

Cr.-int. 109. Did you in this catalogue distinguish these three styles of bronzing; if so, how?

Ans. For the sake of condensing the catalogue as much as possible, we put them all under the head of bronzed.

Cr.-int. 110. On page 37 of this catalogue I find match-safes described as bronzed at $1 a dozen, and below in writing I find the entry, "bronzed P. K. at $1.25 a dozen." Can you explain those entries?

Ans. The first item under match-safes is, japanned with porcelain knobs, per dozen, $1, and the bronzed P. K. referred to at $1.25 very likely means bronzed with porcelain knob. I infer that; I am not positive what it means.

359 Cr.-int. 111. You are positive, are you, that at the date of this catalogue goods resembling Defendants' Exhibit "Art Casting No. 1" in color, finish, and appearance were made by the Peck & Walter concern and sold by you?

Ans. I am decidedly.

Cr.-int. 112. What proportion of the hat and coat hooks and jamb-hooks and similar articles which were made at your factory from the time you went to New Britain to 1864 were finished either in the antique bronze or the other three styles described as bronzed in this catalogue?

Ans. Of the jamb-hooks I should think the proportions of styles were about even—of the various styles I have mentioned and the japanned and the brass; but I think the jamb-hooks went almost entirely out of use about the beginning of the war or soon after, as they were sold mostly South, where stoves were not used, and where fire-places were used up to the war. Of the coat and hat hooks, we were very large manufacturers of japanned and brass, and, in proportion to the japanned, the sale of bronzed was quite small, but I can't recollect so as to give any proximate figures as to proportions. It would be mere guess work.

Cr.-int. 113. Can you state the amount of goods finished by your concern in antique bronze between the times referred to in cross-interrogatory 112, either approximately or accurately?

Ans. I cannot tell with anything like exactness. I remember myself packing antique bronzed coat and hat hooks and antique and gold bronze for shipment to New York store, in large dry goods cases, but how often I did it, or how many were sent, I cannot now remember.

Cr.-int. 114. Did the demand for goods so finished increase during that time?

Ans. After we began making them we sold them in increased quantities up to the breaking out of the war, after which there was a short period of almost entire cessation of business, and then such a rush for regular common hardware that required no special skill in finish, and at almost any price we chose to ask for it, that we paid less attention to anything of the fancy character, and I have no special recollection concerning the sales of that class of goods after the breaking out of the war.

360 Cr.-int. 115. Did you testify, in reply to Cr.-int. 40, propounded to you in the deposition which was taken in the case of Tucker *vs.* Burditt & Williams, which question was: "Did the demand increase during the whole period from 1856 to 1864?" that the demand increased not rapidly, but you should think steadily? That question, I believe, referred to imitation bronze goods?

Ans. I may have done, I don't remember; the demand for our goods increased generally, certainly, but I cannot now call to my mind the particulars of the increased demand for any particular class of goods.

Cr.-int. 116. Are you able to produce any books of the Peck & Walter M'f'g Co. during that period showing sale of bronze antique?

Ans. I think we didn't move any of the Peck & Walter M'f'g Co.'s books to New Haven; I am not sure, but I think they were sold for paper stock before we moved to New Haven; I don't remember their ever being in New Haven.

Cr.-int. 117. Please give the names of all persons employed by either of the concerns with which you were connected between the dates above mentioned who were engaged in the sale of the goods of the concern; state at the same time their residences as far as you can—I mean between the time you came to New Britain and 1864.

Ans. When I first went to New Britain, and for some years afterwards, what sales were made from New Britain by traveling were made mostly by myself, or entirely; we afterwards had a man from New Hartford, who traveled in New England, whose name I forget, and have never seen or heard of him since that time; we had another young man from Stratford, Conn., who traveled in New England, and he afterwards traveled West and was lost on the Ohio river, whose name I have formerly given as Curtis, which I believe is a mistake; I can't recall his name. We have had Geo. H. Sargent in New York, who was a salesman and traveled some, and Mr. Atkins, and very likely others, whose names in New York, if I ever knew, I have forgotten. We also had agencies in Baltimore, the names of the agents being Dongan & Jenkins. We had one in Philadelphia, N. L. Hart & Co., part of the time, early, and a

361 man named Andrews. We had an agency in Boston in charge of a man named Kellogg. I don't remember any other names that I know sold goods.

Cr.-int. 118. Can you name any parties who purchased from the Peck & Walter Co. or J. B. Sargent & Co., either directly or through

the houses in New York, articles finished in antique bronze between the times named above?

Ans. It is impossible, after so long a period of time, to recall any particular concern purchasing any particular class of goods or articles at that time.

Cr.-int. 119. Who were the principal competitors of the Peck & Walter M'f'g Co. between the time you came to New Britain and 1864 in the manufacture of hardware, either in New Britain or elsewhere?

Ans. P. & F. Corbin were our principal competitors in brass goods and silver-plated hardware. Russell & Irwin were also competitors in brass goods to some extent. Blake Bros. & Co., of New Haven, were competitors in japanned hardware, especially house-builders' hardware japanned, and the Hart M'f'g Co. also, on japanned goods and on some classes of brass goods; Chas. Parker & Co. on some japanned goods, I think, but we had no competitor on bronzed iron goods that I remember except Judd M'f'g Co. on sash-fasteners, whom we could scarcely call competitors, as we sold very largely of their goods, and they were a class of goods which did not clash with ours.

Cr.-int. 120. During the whole of the time that you were carrying on business in New Britain you kept yourself informed of the kind of goods and styles of manufacture adopted by your competitors in business, did you not?

Ans. In a general way among any goods of large sale.

Cr.-int. 121. Was the finish on any of the articles made by your competitors throughout that time substantially the same in appearance as the finish you have described as antique bronze, which I suppose is best represented by the Defendants' Exhibits "Art Castings No. 1" and jamb-hooks "H," "H²," and "G?"

Ans. P. & F. Corbin used to make a finish which they called "olive green," and I think they called it some other names—I have forgotten what—which had a slight resemblance in color to
362 these Exhibits "G," "H," "H²," and M. Judd & Co. made what they called bronzed sash-fasteners, which were similar in color to these same Exhibits "G," "H," "H²;" there were other bronzed articles connected with locks and some other articles perhaps in the market with which I was not much acquainted.

Cr.-int. 122. Did you ever hear the term antique bronze applied to goods ornamented with powder bronze?

Ans. I have heard the name antique bronze applied to a dark bronze ground with a sort of verdigris color trimming, which may have been made by powder bronze or may not; I am not aware how it was made, but we never made anything of that character.

Cr.-int. 123. By whom were these goods made?

Ans. I don't know the name of any manufacturer making hardware. I have seen goods so ornamented, in the form of statuettes, in shop windows, and, more recently than the period mentioned, have seen that style of ornamention on such articles as match-safes, which, I think, were made by manufacturers of hardware in the

United States, but I don't know by whom and I am not aware that they are called antique in the hardware trade.

Cr.-int. 124. I understand that you first saw the finish you describe as bronze antique while you did business in New York, and upon goods of the pattern of "Art Casting No. 1," and that this finish was novel to you at that time?

Ans. I had seen the antique-bronzed statuettes and that class of goods very likely long prior to the period made of real bronze, but that finish on iron, I think, was new to me at that time.

Cr.-int. 125. State whether the Defendants' Exhibit, "Brocksieper Picture-Frame," correctly represents, in color and appearance and finish, such bronze antique as you saw in New Britain and in New York prior to 1864.

Ans. This has considerable copper powder bronze, as I suppose, in various places on it, while the bronze spoken of at that time had no copper powder bronze.

Cr.-int. 126. State whether the Defendants' Exhibit "Brocksieper Picture-Frame," correctly represents in color, appearance,
363 and finish such bronze antique as you saw in New Britain and in New York prior to 1864. I refer to the parts of the exhibit not covered with powder bronze.

Ans. There is a general similarity in the appearance of the ground works, but this picture-frame seems much duller, probably on account of its age.

Cr.-int. 127. Is the finish on the picture-frame such antique bronze as you have described?

Ans. I am not an expert and know nothing how the picture-frame was bronzed, except what Mr. Brocksieper told me while it was hanging up in his parlor in New Britain, and what he has said since this trial began.

Cr.-int. 128. Does the "Brocksieper Picture-Frame," in style, finish, and surface and general appearance, correctly represent the finish you have described as bronze antique, except as to its powered surfaces?

Ans. In its general appearance, with those exceptions, I should think it did, except its dullness from apparent age.

Cr.-int. 129. If you manufactured at New Britain, between 1855 and 1864, as you have testified, jamb-hooks, like Defendants' Exhibit "G," with bright salient faces, what was your object in coating such faces with powder bronze, as represented on Defendants' Exhibit "L?"

Ans. They put on the powder bronze gold color on the antique bronze in order to give them a more brilliant appearance, but in the Exhibits "L," "J," "J²" the powder bronze has been almost entirely worn off by so much and long-continued handing, so that they are very little more brilliant, if any, than Exhibits "H," "H²," and "G."

Cr.-int. 130. Does your concern to-day apply to similar salient faces, on your Berlin bronzed goods, any such gold powder?

Ans. I am not sure whether we do or not; we use some little gold bronze on hardware, but whether on any articles Berlin bronzed is more than I am aware. I don't know.

Cr.-int. 131. When did you cease to apply this gold finish, generally, to your bronze antique finish?

Ans. I don't remember the date, if we have ceased altogether.

364 Cr.-int. 132. As I understand it, you make very large quantities, comparatively speaking, of Berlin bronze, of which the salient faces are not touched with gold powder; am I right?

Ans. We make quantities of Berlin bronzed goods the salient faces of which are not touched with bronze powder.

Cr.-int. 133. Have you testified before, in the case of Tucker *vs.* Burditt & Williams, in regard to goods made by you, as you claimed, in anticipation of this patent, and have you signed and sworn to an affidavit heretofore filed in this case in regard to the motion for injunction?

Ans. I signed and swore to an affidavit in this case connected with the petition for an injunction, and I believe I gave testimony in regard to the case of Tucker *vs.* somebody.

Cr.-int. 134. Did you mention in either said affidavit or said testimony the goods made and sold by you in New York like "Art Casting No. 1" in color, appearance, and finish?

Ans. I don't remember.

Cr.-int. 135. But you have already testified, have you not, that while you did business in New York you were in New Britain, and inquired particularly how the finish of "Art Casting No. 1" was done, saying, 'And that makes me think I couldn't have known of other goods being made with the same finish, as it was novel to me at the time?" How do you explain in connection with that the statement in your affidavit, which I will quote: "And I took much interest in those experiments and the results with other goods that followed the discovery then so made, that polished iron covered with a thin coating of an oily varnish and subjected to a very high heat became beautifully bronzed?" How did you discover in connection with Bradford's experiments what you have testified you knew while you were in New York?

Ans. When I inquired at my visit in New Britain particularly how the finish of "Art Casting No. 1" was done, I got no satisfactory information as to how it was done, except it was done over a forge, but I had not the particulars of the process, and the person telling me nidn't know himself. He was the book-keeper. The interest that I took in the experiments made by Mr. Bradford with the carriage-knobs was more especially connected with get-

365 ting a black color for carriage-knobs by that process, and in the more practicable way of coloring hardware a bronze color in an oven, the coloring of them over a blacksmith's forge in any large quantity scarcely being practicable. The book-keeper at that time informed me, when I inquired how "Art Casting No. 1" was done, that it was one of Brocksieper's processes.

Cr.-int. 136. When did your concern first sell carriage-knobs under the name "English finish?"

Ans. Immediately after they were made according to Mr. Bradford's experiments, as early as 1857 and probably in 1856, and it is

possible, though I don't remember certainly, that we attempted to make carriage-knobs prior to that time by blacking them with a superior quality of black baking japan, which might have been sold prior to Mr. Bradford's, and I think some were that were made in that way, that were intended to imitate the English finish in quality.

Cr.-int. 137. Were such knobs sold under the name English-finish carriage-knobs before the date of Mr. Bradford's experiments?

Ans. Not that I remember. We certainly had none labelled English finish, and none in any price book, as English finish. Prior to the time I went to New Britain most of the carriage-knobs were sold to carriage hardware dealers by Elnathan Peck, the president of the company, in person or ordered by the carriage hardware dealers direct from the factory.

Cross-int. 138. How long did you continue the manufacture of carriage-knobs, as described in your answer to Int. 17?

Ans. Certainly so long as the kilns were used that were in the back yard of the premises in New Britain, and I suppose afterwards. We have made some, as I suppose, in the same way since we have been in New Haven. The kiln remained in the back yard to 1859 and probably afterwards. There was scarcely any call for carriage hardware after the beginning of the war, and we went almost entirely out of the carriage hardware business, which, with us, consisted mainly of carriage-knobs, and have done comparatively little since in carriage-knobs, except to make the castings for other manufacturers.

Cr.-int. 139. Are knobs to-day made and sold by the con-
366 cern, Sargent & Co., under the name English-finish carriage-knobs? If so, please describe in detail the process, indicating all changes from the processes described by you in answer to Int. 17.

Ans. I don't know whether we are making them now or not. I don't know whether they are in our price-list at present, but I suppose we are selling them, and am not familiar with the process, and am not sure whether the old process is continued at the present time. If we are selling them at all it is in very small quantities, and it is now an unimportant article.

Cr.-int. 140. Can you identify the box of knobs now shown you as the goods made by Sargent & Co., and sold at the present day as English-finish carriage-knobs?

Ans. I cannot. The box has a green label on one end printed "1 gross, No. 102 English-finish Japan Carriage-knobs, Sargent & Co.," which green label has been pasted over a red label. The red label, I have no doubt, described a common carriage-knob, which were the contents of the box, and a customer having ordered English-finish carriage-knobs, some person in our employ pasted an English-finish green label over the other red label, thus, possibly, wrongfully disposing of the common carriage-knob as the English-finish carriage-knob. I know nothing of the facts in the case except from the appearance of the exhibit. It is quite possible that our contractor for coloring the English-finish knobs might commit the same fraud upon us, although I am not aware of it being done.

Cr.-int. 141. Are the knobs in that box English-finish carriage-knobs?

Ans. I should say not; not such English-finish carriage-knobs as we used to make when I took more care of the manufacturing. These appear to have been blacked with common japan.

(Complainant's counsel puts the box of carriage-knobs above referred to in evidence, and they are marked Complainant's Exhibit "G," J. B. M., Special Ex.)

Cr.-int. 142. For how many years are you able to state, of your own knowledge, that Peck & Walter M'f'g Co. and their successors manufactured English-finish carriage-knobs finished and colored as you have described in answer to Int. 17?

367 Ans. In the year 1859 I was engaged in extending the works in New Britain considerably, in new buildings and steam power, in new engines and boilers, and from that time I ceased, in part, to have the intimate personal supervision over the manufacturing that I had had prior to 1859, so that my personal knowledge of the process used might be said to extend only from the time we began to 1859, a period of two or three years.

Cr.-int. 143. Were English-finish carriage-knobs made by your concern after 1859 in accordance with the process described in your answer to int. 17?

Ans. After the erection of the two-story brick building in 1859 and the putting in in the latter part of that year some steam kilns in that building we tried to make them in that kiln with steam heat, and I remember finding some knobs, purporting to be English-finish carriage-knobs, being packed in our packing-room at that time which were not satisfactory in finish. They were not at all as we had theretofore finished them, the japanning of them being of a material thickness and not solid. I remember going to the kiln and meeting on the steps of the building in which the kiln was situated Mr. Lummady, the colored man who then had charge of the baking as contractor. I spoke to him about the poor finish on the knobs, telling him that they were not made English finish at all, and he replied that they were doing the best they could; that, with the steam heat in the new kiln, he couldn't get enough heat to finish them the old way; very possibly the making of English-finish knobs, in the manner pointed out by Mr. Bradford, was discontinued or they may have been made afterwards in another kiln; I am not sure which. After we removed to New Haven, where we supposed we had kilns with sufficient heat to finish in the original English-finish way, as Mr. Bradford pointed out, I remember Mr. Bradford's coming to me with some knobs which had been attempted to have been coated in the old way with a thin coating of English varnish, and they were a failure, and Mr. Bradford told me that he conldn't possibly get enough heat to finish them, in the old way, with steam ovens. Not long afterwards one of the steam kilns was taken away and an oven, a kiln, was put in its place which was heated by direct fire heat,

368 and I suppose that we finished English-finish knobs in that fire-heated kiln in the old way.

Cr.-int. 144. Do you know that English-finish carriage-knobs have been made by your concern in New Haven since you moved here? If so, please describe the process.

Ans. I don't remember to have ever personally seen any made, and, therefore, could not describe the process. I see very little of what we make nowadays, as we make several thousand different articles, and my duties are confined to other departments of the business than manufacturing.

Cr.-int. 145. Will you look at the copy of your affidavit before filed in this case and say whether you made the following statements therein contained, and explain, in view of your foregoing answers, what you meant by them?

"In the following spring of 1857 I had a small brick building erected expressly for the purpose of heating kilns and the attending work, in which I had built two baking or heating kilns, each larger than the one before used and with much better facilities for obtaining high heat.

"The business of coloring the 'English-finish' knobs was carried on in one of them, using the process described in the deposition of Purmont Bradford, which was polishing the knobs and then covering them with a thin coat of English-brown varnish thinned with spirits of turpentine, and subjecting them to a high degree of heat, the coating and heating being repeated twice after the first process and the heat as high as 450° Fah.

"'English-finish' carriage-knobs thus finished and colored became from that time, and still remain, a regular article of manufacture and sale by the Peck & Walter M'f'g Co., of New Britain, in 1856, to the present time, by Sargent & Co., of New Haven, their successors.

"Immediately after the erection of the aforesaid new heating-kilns, which were arranged for and equipped with thermometers graduated for a heat of 600° Fah. and over (none graduated for less than 600° were used), the company began to color their 'English-finish' carriage-knobs in them by the process described in the deposition of Purmont Bradford, and soon after, while so doing, began and
369 continued the bronzing of sash-fasteners in the same manner as bronzing the knobs as aforesaid, with the same materials, applied in the same manner and subjected to the same heat, but coated and heated only once."

Ans. The material statements made in this extract of my affidavit alluded to, as to a new kiln being built in the early spring of 1857 with facilities for high heat, are correct. I confounded, in making this statement, the time of the erection of the kiln, therein stated, with the erection of the brick building on the same spot two years and a half later. I had forgotten the fact, when I made this affidavit, that I had a small wooden building moved up to the end of the brass foundry in the spring of 1857 for the Gebhardt kiln, that building having been taken away in 1859. I had lost sight of it and it was lost to my memory. The business of coloring the English-finish knobs, which I state was carried on in one of them, I think was correct in part, although I think the English-finish

knobs were made in the kiln in the back yard as well. English-finish carriage-knobs thus finished and colored were made as stated and continued a regular article of sale up to the war, and, perhaps, since. We have them still, as I believe, in our price books, but I have not, as I have before stated, a personal knowledge of how we finish them now. The statement as to the bronzing of sash-fasteners is, I believe, correct, but possibly we used size, which is another name for thinned varnish, instead of English brown varnish, which was used on the carriage-knobs, but I understand them to be a substantial equivalent. The kilns in the yard were sometimes overloaded with work to be baked and, I think, we often had particular work baked in the Gebhardt kiln in the wooden building—such work as would have been baked in the kilns in the yard ordinarily.

Cr.-int. 146. How many kilns were there in the yard?

Ans. As I remember there were two, standing side by side in one building—I may possibly be mistaken—perhaps there was only one, but I think two.

Cr.-int. 147. Do you remember the fact that the kiln or kilns in the yard were torn down. If so, the time?

Ans. In about 1865, I think. I sold the premises to a man who converted them into tenements; the two-story brick building erected to contain steam kilns, on the place where the build-
370 ing stood which had the Gebhardt kiln in it, had the upper part converted into a tenement and the lower part into some kind of a store. The brass foundry was converted into two or three tenements. The building in which the kiln stood (the kilns in the back yard) was converted into privies or woodsheds, I believe, and then probably the kilns were taken out, and possibly before. If they were taken out before, I don't remember it. I sold the property as it stood when we left it, and probably we took out the iron work when we removed to New Haven, if we hadn't done it before.

Cr.-int. 148. Were the steam kilns which you have now testified to as erected in 1859 furnished with thermometers?

Ans. I think not; I am quite sure not.

Cr.-int. 149. Did you know before you left New Britain the temperature of steam heat?

Ans. I don't think I did.

Cr.-int. 150. It appeared that you had been using steam-heated kilns for four years before you went to New Haven, does it not? It also appears from your answer to Cr.-int. 143 that you had found the heat inadequate to the manufacture of English-finish carriage-knobs, according to the method described by you in answer to interrogatory 17; will you explain the statements in your affidavit which I will quote to you: "I built very largely in New Haven. * * * Some large manufacturers had then recently adopted the use of steam to heat their japanning ovens, the Wheeler & Wilson M'f 'g Co, of Bridgeport, being one of them, and the parties who built and steampiped the ovens for that company convinced me that steam heat was just what was wanted for heating the kilns that I proposed to build for heating and coloring iron. I had no knowl-

edge as to the temperature of steam heat, and did not inquire, but, relying upon the statements of men practical in steam-heating, I had heating kilns built and heated by steam. They were built immediately over the steam boilers that furnished the steam power for the whole works, and not more than five feet above. They were built of brick, with an inside lining of plaster-of-paris; were lined with steam pipes, as close together as they could be placed
371 and connected in the most improved manner, directly with the boilers underneath; steam was used at a pressure of 70 lbs. to the square inch, indicating a temperature of over 300° Fahr. After repeated attempts at bronzing hardware in these kilns as we had been accustomed to bronze it in New Britain, and not succeeding for want of sufficient heat, and there being no other place on the premises where other kilns could be built in safety as to fire risk and convenient for use, the bronzing of hardware was temporarily suspended."

Ans. The steam-kilns erected at New Britain answered the purpose for japanning with baking japan fairly well, although from the beginning of the war until we removed to New Haven we had much difficuly with japanning—more, I think, on account of the inferior quality of the japan then used, manufacturers not being able during the war to get spirits of turpentine, which they had always been accustomed to use in making baking japan, and were obliged to use benzine, which, with their then knowledge of its properties, produced a very poor article of baking japan, but our steam-power was not excessive, only moderate, only half what it was when we began in New Haven, and the steam-pipe leading from the boiler to the kilns was quite small, I think not over ¾ of an inch, and the steam-boilers from which the steam was taken through this pipe must have been nearly 150 feet distant from the kilns, and therefore the pipe was not capable of conveying steam very hot to the kilns; it was on this account, as we thought, that we couldn't get sufficient heat in the steam-kilns at New Britain for English-finishing carriage-knobs and bronzing hardware; we were advised that with the proposed location of the boilers at New Haven with the steam-kilns immediately over them, and not over five feet distant, that the results would be quite different and the heat sufficient for the purpose for which they were intended, viz., japanning hardware, English-finishing knobs, and bronzing, in which we were disappointed.

Cr.-int. 151. After you built the steam-heated kilns in 1859 where did you bake your bronze antique finish?

Ans. I don't remember. It might have been in the kiln in the back yard or in the Gebhardt kiln, if that still remained in the brass foundry, of which I am not sure, or in some temporary kiln—I can't remember.

372 Cr.-int. 152. Did the Gebhardt kiln remain standing in 1859 when you built the steam-heated kilns?

Ans. I do not remember whether that kiln was left standing or not. If it projected almost entirely, or entirely, within the brass foundry it would have likely been left standing; otherwise not, I think.

Cr.-int. 153. You are not positive that even the Gebhardt kiln was standing after 1859, then? Are you positive that English-finish knobs and bronze antique was baked anywhere on the premises after that time?

Ans. I am not entirely positive from any personal knowledge and recollection.

Cr.-int. 154. How large were your sales of English-finish knobs while you were in New Britain?

Ans. Quite considerable, but not nearly so large as of the common knob.

Cr.-int. 155. Please describe the substance which you have designated as "English brown japan."

Ans. It is a brown varnish, known as English varnish—lock varnish sometimes among lockmakers—composed, as I have always understood, of boiled linseed oil, spirits of turpentine, with a little Zanzibar gum.

Cr.-int. 156. Are you positive that the material used by you in your experiments conducted by Mr. Bradford was not a fine imported japan, colored with pigments, commonly known as English japan, by which you produced the black finish on the carriage-knobs?

Ans. I am very positive—entirely so.

Cr.-int. 157. On page 78 of the price list of Sargent & Co., dated 1859, I find the list of carriage-knobs. Will you please state whether those described with English finish at the foot of the list are the knobs you have described as English-finish carriage-knobs, and explain the sentence in the foot-note, which I will quote, as follows: "The 'japanned' with 'English finish' are all turned smooth in a lathe and japanned with the best English japan?"

Ans. That price list of carriage-knobs was issued to govern the carriage hardware trade, and if we had said they were colored or japanned with English brown varnish it would
373 have appeared as an absurdity to that trade. They would not have known what we meant by japanned carriage-knobs colored or japanned with English brown varnish, and English brown varnish, among hardware manufacturers, is called either English lock varnish or English japan more generally than it is called English brown varnish. As I have always understood since I have been connected with the hardware business some of the manufacturers of the best locks have always used English brown varnish for japanning their best locks, using it in substantially the same manner that Mr. Bradford used it—that is to say, two coats, the first baking brown and the second coat black, but put on much thicker, so that in appearance, when finished it becomes a black japan with a substantial thick coat like common japan. I mean that the trade would not have understood that black-japanned knobs could be produced by a brown varnish. If we had said in our list they would have expected a brown knob.

Cr.-int. 158. You have previously defined the word bronzed, as used in the catalogue of 1855, as covering three styles of finish with powder. Is it used in the same sense in this book?

Ans. It may be in some cases, and in other cases not. In the book

dated 1855 the word "bronzed" may not cover in some cases more than one style of bronzing, as we may not have made of some articles more than one style of bronzing.

Cr.-int. 159. On the 43d page of this book I find bronzed coat and hat hooks described; would the word "bronzed" in that connection include more than one variety? It appears to be defined in the line below as follows: "The copper is a bright copper and green mingled."

Ans. I should say that this particular case, closely construed, might be said to mean only one class of bronzing, but, under that title, we should sell any variety of bronzed hat-hooks costing about the same price, making the variations of style of finish according to the order or sample shown. We made several varieties of bronzed coat and hat hooks not very large in quantity for each variety and not specified in the book, but sold by sample.

Cr.-int. 160. What is meant by the term "French bronzed," as used on the 20th page of this book in describing cork-presses?

374 Ans. French bronze was a powder bronze used to imitate French statuettes—not a very close imitation, probably; had a green and copper color, and varied somewhat according to taste.

Cr.-int. 161. At this time, I believe in 1859, you were selling large quantities of the finish you have described as bronze antique; how do you explain the fact that you failed to advertise in connection with each of the articles to which you applied it so beautiful a finish, peculiar to yourselves as manufacturers, as that upon Defendants' "Art Exhibit No. 1?" You appear to mention it only in connection with the two somewhat obscure patterns of match-safes, if I am right in supposing the words "bronze antique," on page 16, to refer to this finish.

Ans. The date you have referred to, 1859, is not the actual time of the printing of this price-book, but it was the latter part of the year 1858, at which time we had had only about from a year to a year and a half experience in making most of the articles. We were not selling any one particular article in large quantities, and being an unknown style of finish comparatively, it would have been useless to have advertised it in the price-book, as customers would not have known what the word "antique" meant. We depended upon the use of samples to effect sales, and mostly at our store or by travelers. The "Art Exhibit No. 1" and the sash-fastener we never called antique.

Adjourned until Thursday, Feb. 24, 1881, at 10 o'clock a. m.

NEW HAVEN, *Feb.* 24—10 a. m.

Hearing resumed. Parties present as before.

Cr.-int. 162. Please define the word "bronzed" as applied to flower-stands, on page 13 of the catalogue of 1859 produced by you; describe the bronzing process by which that finish is produced.

Ans. I don't remember in how many styles of bronzing we finished those goods, but whatever styles they were or processes of

bronzing, the word bronzing, in its general sense, was intended to cover.

Cr.-int. 163. Was there a manufacturer of bird-cage hooks named Brown referred to in the ink entries on page 15, which
375 are as follows: "Brown's prices japanned bronzed, gold bronzed, French bronzed?"

Ans. I infer that there was a manufacturer named Brown, from this pen-and-ink memorandum entry in the price-book, and that these styles mentioned and prices referred to the goods made by Brown, but I have no recollection whatever concerning it, or that any man named Brown made bird-cage hooks.

Cr.-int. 164. What was the difference between the style of cork-presses referred to as bronzed on page 20 of this catalogue and French bronze described in the same place?

Ans. French bronze usually meant a mingling of different colors of bronze powder, mostly green, a light green, with a dash of copper color and perhaps sometimes a little yellow bronze. The word bronzed by itself would cover any styles of bronzing or process of bronzing, whether on iron covered all over with gold bronze or japanned iron tipped with gold bronze or any other kind of bronze finish, and wherever we used the word bronzed at all, or even French bronzed, we always took the liberty of making a great variety of finishes of bronzed goods and by different processes, including them in a general way under either printed designation, so as not to multiply the number of separate designations, and thereby increase the size of the price-book.

Cr.-int. 165. Is it your custom to-day to make a great variety of finishes, by different processes, upon goods included in a general way under one printed designation in your price-book?

Ans. We have systematized our methods of description in our price-books of late years, and have generally described the articles more elaborately than formerly, but we still include under the head of bronzed various colors and processes; for instance, we have made coat and hat hooks painted white, then dried and touched up the prominent points with gold-colored bronze, and, I think, with other colors of bronze, and some with scarlet paint with a bronze tip and bronzed high prominent points, for which styles of bronzing we have no special designation in the price-book, but they come under the head of bronzed, and are usually made to order.

Cr.-int. 166. Please define the term "yellow bronzed," as
376 applied to clock-sheves on page 20 of this catalogue of 1859—the entries in pencil.

Ans. Probably the word bronzed as printed referred to the clock-shelves finished in two ways, one by being japanned with the prominent points covered with gold bronze, and [the] other style bronzed all over. I think the word yellow may have referred especially to some that were bronzed after Mr. Brocksieper's process by polishing off with sand-paper the prominent points, covering the surface with a thin coating of thin varnish and subjecting them to such a high heat as to turn them a straw color on the polished parts, and then the prominent parts were touched up with the yellow bronze. I am

quite sure we made some in that way. although have not been quite sufficiently positive to have stated it in this examination, but seeing this change in the designation as at first printed tends to confirm me in the belief that we did finish them in the way indicated.

Cr.-int. 167. Did you apply the finish you have described as antique bronze to "Sargent's drawer-pulls," described on a slip pasted in at page 3 of this catalogue and described as "copper bronzed," "gold bronzed," and "French bronzed?"

Ans. We may have done [so], but I do not recollect whether we did or not. We were in the habit of bronzing in that way occasionally small lots of various articles to order, but the quantities were small and I have no recollection what the goods were, beyond what has been heretofore stated, except that I do remember that we made — while in New Britain after the manner heretofore described—that is, by polishing the tip or top of the knob of No. 7 coat and hat hooks on page No. 42 of the book dated 1859, smoothing and slightly polishing the remainder of the hook, covering them with a thin coat of varnish thinned with spirits of turpentine, which we called size, and subjecting them to a high heat, which gave them the appearance of a dark straw color bronze, and the knob had a bright polish, giving it the appearance of the polished prominent points in antique bronzes.

(Objected to as irresponsive, except as to first clause.)

Cr.-int. 168. Were the goods described on page 53 of 1859 catalogue as "Judd's patent sash-fasteners" made by the Peck & Walter M'f'g Co.?

Ans. They were not.

377 Cr.-int. 169. By whom were they made?

Ans. By M. Judd & Co.; I think that was the name of the firm at that time, of New Britain.

Cr. int. 170. Describe the goods referred to as "bronzed" in price list of these goods—I mean as to finish and appearance.

Ans. As I remember them, although I never handled them much as we bought and sold them, they were of a color between a straw color and a brown, with no perceptible thickness of the coloring-matter upon them.

Cr.-int. 171. Do the specimens Exhibit "Judd's Sash-fasteners" now shown you correctly represent the goods referred to in your last answer?

Ans. They do not at all, neither in manufacture, style, pattern, nor finish. I never knew that this style of sash-fasteners was made by that concern to the best of my knowledge and recollection, and I have never seen this pattern of a sash-fastener, to the best of my knowledge and recollection, till during the process of this examination in the office of Mr. John S. Beach.

(The sash-fasteners above referred to are put in evidence and they are marked Complainant's Exhibit "Judd's Sash-fasteners," J. B. M., Special Examiner.)

Cr.-int. 172. On page 71 of the same catalogue I find "bronzed"

coffin handles (common), described in pencil as "gold and black," was that finish properly described by those two words?

Ans. The word bronzed, as printed in this instance, may have been intended to cover various styles of bronzing, and after the book was printed we may have intended to limit the number of styles under that head to gold and black bronze only, but I have no recollection concerning it.

(The catalogues are put in evidence and are marked, respectively, Complainant's Exhibit "Sargent's Catalogue of 1855," "J. B. Mills, Special Examiner," and "Sargent's Catalogue of 1859," J. B. Mills, Special Examiner.)

378 Cr.-int. 173. I find that Sargent catalogue of 1855 contains, on page 53, the entry Peck Smith Manufacturing Co. price-list; on page 81, the American Bed-Screw Co.'s price-list; on page 85, Hart M'f'g Co.'s price-list; on page 91, John Mix M'f'g Co.'s price-list; on page 93, Bristol Hardware Co.; 99, Sargent & Bros.; page 103, the list of Nashua Lock Co. Were the goods of these several concerns sold by you at the time that catalogue was printed?

Ans. They were sold by our New York firm, which was at that time Sargent & Bro., I think, or Sargent Bro. & Co., I am not sure, and as a saving expense were included all in one book with the goods of the Peck & Walter M'f'g Co. I think the Peck & Walter M'f'g Co. as a company had no interest in the sales of the goods manufactured by the firms named.

Cr.-int. 174. At how early a date were japanned carriage-knobs made by other American manufacturers, so far as you recollect?

Ans. I don't know that I have any recollection concerning it. First that I knew of the manufacture of carriage-knobs by any American manufacturer, to the best of my recollection, was when I took the goods of the Peck & Walter Co. to sell in my place of business in New York or had samples of them there.

Cr.-int. 175. What other American manufacturers have made carriage-knobs beside Peck & Walter and their successors?

Ans. I don't know, of my own knowledge, that any other concern has made them.

Cr.-int. 176. Was the process of smoothing carriage-knobs on a lathe a new feature in their manufacture, adopted first by the Peck & Walter Co. after you came to New Britain?

Ans. I am not sure that they had not been smoothed in a lathe before I went to New Britain to manage the business in their attempts to improve the quality of a portion of the knobs.

Cr.-int. 177. In your affidavit filed in this case you say I have read the deposition of Mr. Bradford in this case, and what he has said there of coloring knobs and other hardware is true, of my own knowledge. You also say, "During the time from 1857 to 1864 very considerable quantities of other hardware were made and sold that were bronzed by substantially the same process as that described in the dep-
379 osition of F. W. Brocksieper in this case, which deposition I have read, and I know, of my own knowledge, that that part relating to bronzing looking-glass frames, coat and hat hooks, cup-

board-catches, jamb-hooks, &c., made by him, is true." Will you please look at the said affidavits, now shown you, of Brocksieper and Bradford, and your own affidavit filed in said case, and say whether you wish to modify either statement quoted above?

(Affidavits of F. W. Brocksieper, Purmont Bradford, and J. B. Sargent are put in evidence, and the same are marked "Affidavits of Sargent, Brocksieper, and Bradford. J. B. Mills, Special Examiner.)

Ans. The affidavits are exactly correct in the main. I am not sure in which kilns at first the articles were always heated, whether in the old kilns in the yard, where the English-finish carriage-knobs were heated, or in the new one erected in the spring of 1857, or possibly at a little earlier date, or in all at times, according to convenience and opportunity, but I am sure of the general correctness of the affidavit of Mr. Bradford, and especially as to the correctness of his description of the process of bronzing and then coloring black, by repetition of the process of bronzing the carriage-knobs, because I obtained the English brown varnish and watched the process of varnishing and heating. I cannot positively state that I saw the whole process in bronzing the other articles of hardware by Mr. Bradford, but remember it being done by Mr. Bradford, and that he carried samples of the bronzed articles to the office, where they remained a long time. Among the articles, samples of which bronzed by Mr. Bradford *and* brought to me at the office by Mr. Bradford, I distinctly remember coat and hat hooks and cupboard buttons on plates. There were several other articles brought at the same time, but I cannot positively fix in my memory what they were. I cannot positively state from my own memory that bronzing by that process was actually carried on by us clear up to the time we left New Britain, but I do not remember that we ceased doing it there. In the latter part of the time our manufacturing business was carried on at New
380 Britain my own personal attention was devoted to the general management of the business and to its finances, and very considerably to the manufacturing business in Massachusetts and New Hampshire, in which I was interested; but up to 1859 and 1860 I devoted my time very considerably to our manufacturing at New Britain (beginning at the time I went there to take charge of the business), which was till Mr. Brocksieper left in about 1859, and the statements concerning the bronzing of articles as stated by Mr. Brocksieper in his affidavit I am sure are true, and I saw him during the time he was employed by the company in New Britain do the work, and perfectly well remember his showing me a lot of the antique bronzed coat and hat hooks immediately after they had been taken out of the baking kiln, which were bronzed too dark to suit him. They were heated in Gebhardt's kiln and were lying on the shelf in the wooden building on the side of the building towards the main factory. He showed me the backs where they were not sized or varnished and they were colored purple and blue. He showed me some of a previous batch, which were straw color on the

back, and he told me those heated to show a straw color on the back gave the color for the hook that he wanted to get.

(So much of the answer as follows, "and perfectly well remember," objected to as irresponsive.)

Cr.-int. 178. At what time did you cease to sell the finish like Defendants' Exhibit "Art Casting No. 1," under the name of "bronze antique?"

Ans. We never sold it under the name of bronze antique that I remember.

Cr.-int. 179. At what time did you begin to sell a finish under the name "Berlin bronze?"

Ans. We adopted the trade-mark Berlin bronze, and used it some time between 1866 and 1869; I can't remember exactly when.

Cr.-int. 180. Who was the contractor who first made goods sold under this name for you?

Ans. I am not sure, but should think it likely it was John
381 Ruff. We had considerable changing of contractors in various departments immediately after coming to New Haven.

Cr.-int. 181. Did you advertise Berlin bronze in your catalogue or price-list before the Corbins began to make Tucker bronze?

Ans. I remember neither the exact time when we began to use the word Berlin bronze nor when P. & F. Corbin began to use the wood Tucker bronze.

Cr.-int. 182. Will you produce, this afternoon, your catalogues between 1860 and 1870?

Ans. I will if we have them.

Cr.-int. 183. Please state when the book produced by you, dated 1861, marked Complainant's Exhibit "Sargent Catalogue, 1861," J. B. Mills, Special Examiner, was printed, and for how many years it was the book from which the concern of J. B. Sargent & Co. sold?

Ans. I presume it was printed in 1860, late in the year. There is an appendix printed about a year later, possibly about two years later, attached to the same book, and I know of no other catalogue until the catalogue of 1866; if there was another I have no copy.

Cr.-int. 184. Please look at the page 3 of this book, where I find bee-hive twine-boxes described as "japanned," "green," "black and gold bronzed," "green and gold bronzed," "all gold bronzed." Please describe each of those kinds of finish, unless you have before described them.

Ans. Japanned, I presume, is black; green, I suppose, is green in color; the black and gold bronzed I take to be japanned with the prominent points touched up with gold bronze; the green and gold bronze I take to be green with the prominent points touched up with gold bronze, and the all-gold bronze I suppose to have been bronzed with gold bronze-powder all over—the word gold meaning gold color.

Cr.-int. 185. How was the finish described as green produced?

Ans. By green paint.

Cr.-int. 186. On pages 12 to 15, inclusive, I find the price-list of

shelf-brackets. Please state whether the finish described by you as bronze antique was applied to these articles by your
382 concern between 1861 and 1866—I mean finish like that on coat and hat hooks "G," "H," and "H²."

Ans. We never at that time finished any brackets, that I remember, with antique finish.

Cr.-int. 187. Did you at that time apply bronzed antique finish to hooks and drawer-pulls; if so, will you please indicate whether, on pages 18 and 19 of this book, you find such finish identified?

Ans. I don't find any such finish identified on those pages; I am not sure whether we made them during that limited period.

Cr.-int. 188. Are you positive that the finish described as bronze antique, on page 20, as applied to two patterns of match-safes, was not a finish done with green powder or paint without high heat?

Ans. I am not positive that they were not bronzed in that way.

Cr.-int. 189. On the 66th page I find 14 numbers of Sargent's drawer-pulls described variously as japanned, copper bronzed, gold bronzed, French bronzed, &c.; are you able to identify any of those numbers as referring to the style you have described as antique bronze?

Ans. None of these appear to have been antique bronze.

Cr.-int. 190. Will you look through the catalogue and see if you find any mention of that finish, antique bronze?

Ans. I find on the match-safes two kinds, page 20, and on page 85 Sargent's sash-fasteners were bronzed in the same manner. I find no mention in print in this catalgue of any other article, and the sash-fasteners are not printed as antique bronzed, but what bronzed sash-fasteners of that style we ever made were bronzed by a thin coat of varnish baked at a high heat; whether they were actually made after this book was printed, or this book had them printed in to close out stock previously made, is more than I remember.

Cr.-int. 191. I call your attention to pages 118 and 119, where carriage-knobs are described, and to the sentence at the top of the page, "japanned with English finish," and the foot-note at the bottom of the page, "The 'japanned English finish' are all turned smooth in a lathe and japanned with the best English japan;" please explain those entries.

383 Ans. The japanned with English finish were all turned smooth in a lathe, then coated with a thin coat of English brown varnish, thinned with spirits of turpentine, and set in a baking kiln on plates of sheet-iron, and baked at a very high heat, until they become straw color to a dark brown; they were then taken out of the kiln and treated as before, and baked again as before, which usually made them black, sometimes only a bluish purple, if the heat was not sufficiently high; in which case they were subjected to another process as before, making a third baking and coating, which made them black.

Cr.-int. 192. Please examine catalogue now shown you, marked Complainant's Exhibit "Sargent Catalogue, 1866," J. B. Mills, Special Examiner, and state when it was printed and how long used as a sales book.

Ans. I had nothing to do personally with getting up this book, I believe, but I presume it was printed in the latter part of the year 1865, ready for issue January, 1866. I think it was used until the book dated 1869 was issued.

Cr.-int. 193. Do you find the words bronze antique used in that book as applied to any finish?

Ans. I don't find anything called antique bronze in the book.

Cr.-int. 194. Will you look at the catalogue shown you, now put in evidence and marked Complainant's Exhibit "Sargent Catalogue, 1869," J. B. Mills, Special Examiner, and say when it was printed, and also, if you can, when the appendix thereto was printed?

Ans. I had nothing to do personally with getting up this catalogue, or appendix attached to it, so far as I remember, but I presume the main catalogue was printed in the latter part of 1868 for issue in January, 1869, and during the year 1869 the appendix was printed, containing additional and new styles of goods.

Cr.-int. 195. Will you examine the catalogue proper and say whether the term Berlin bronze is applied to any finish therein described?

Ans. I do not see the term printed in the catalogue proper.

Cr.-int. 196. Please explain the finish described on page 116, as applied to ornamental brackets "bronzed in imitation of black walnut," as to color, finish, and appearance.

384 Ans. These were all colored by varnish; most of them, I think, with varnish having pigment, or a part of them. I believe that Nos. 61, 62, 65, and 66 were colored by a a thin coating of size or clear varnish thinned down with turpentine and baked; also card-receivers, on page 123. I may be mistaken.

Cr.-int. 197. Decribe fully the process of coloring Nos. 61, 62, 65, and 66, on page 118.

Ans. I don't remember that I ever saw these articles being colored. I judged of the method of coloring only from my recollection of the appearance of the articles.

Cr.-int. 198. Were these articles—I mean the goods bronzed in imitation of black walnut, as described in this catalogue—finished with a high heat, such as you have described as used in the production of the finish on "G," "H," and "H²?"

Ans. As I stated in my answer to the last interrogatory, I had no personal knowledge of the process of coloring them.

Cr.-int. 199. Whether the term Berlin bronze is first applied to goods described in your catalogue in the appendix to this book where I find it applied to drawer-pulls, sash-lifts, and shelf brackets?

Ans. I don't know how long we used the term before we printed it in a book, but that appendix appears to be the first book of ours in which it was printed as a trade-mark designation.

Cr.-int. 200. Are you able to state the process by which the goods described as Berlin bronze were finished?

Ans. If that applies to what was printed in that appendix and since, generally it was coating the articles in a varnish somewhat

colored to avoid the necessity of very high heat, and baked in ovens.

Cr.-int. 201. What heat was used in such ovens in baking Berlin bronze?

Ans. I have no personal knowledge of the degree of heat.

Cr.-int. 202. On page 213 of the catalogue of 1869 I find carriage-knobs described as "English finish, japanned;" were the goods there described made in the same way as those described as English finish in the previous catalogue?

Ans. I find by looking at catalogue of 1866, pages 138–9, and by looking at the catalogue of 1869, pages 212 and 213,
385 that the former description of the method or process of japanning them as is described in the previous catalogues of 1859 and 1861, in which they are said to be japanned with the best English japan, is omitted, and I, therefore, infer that when the book dated 1866 was printed and the book 1869 was printed we were not in the habit of japanning our English-finish knobs by the former method of using English-brown varnish, but, in the absence of the facilities for obtaining high heat in the kilns, our people had resorted to the use of a superior quality of black japan, being put on over the turned carriage-knobs. I had, until recently, supposed that all our carriage-knobs that we sell as English finish were made as we made them in New Britain in 1857 and afterwards; but I think I was mistaken.

Cr.-int. 203. Then your concern of Sargent & Co. do not to-day use high heat or English-brown varnish in producing English-finish carriage-knobs?

Ans. I was informed to-day that we are not doing it; but the sale of them is so very small and has been since we have been in New Haven that I have not paid any personal attention to their finish.

Hearing adjourned until Friday, Feb. 25th, 1881, at 10 o'clock a. m.

NEW HAVEN, *Feb.* 25, 1881—10 o'clock a. m.

Hearing resumed. Parties present as before.

Cr.-int. 204. When was your attention first called to Mr. Tucker's patent here in suit or the finish which is commonly known as Tucker bronze?

Ans. I have no recollection concerning the time.

Cr.-int. 205. Had you any communication with the Tucker M'f'g Co. of Boston, or their counsel, at or about the time of Mr. Tucker's suit against them for infringement of his patent?

Ans None that I remember.

386 Cr.-int. 206. When did you first have any personal communication with Mr. Tucker on this subject?

Ans. I don't remember the time.

Cr.-int. 207. Do you remember an interview with him on the subject at your factory in New Haven, shortly after the decision of the circuit court in his suit against the Tucker M'f'g Co.—that is, in September, 1876?

Ans. I think I remember having an interview with Mr. Tucker, but I do not now remember the time nor place.

Cr.-int. 208. Please examine the copies of letters now shown you, and state whether the originals of these two letters were written by you to Mr. Tucker—the first on or about the date which it bears and the second in the summer of 1879.

(Copies of Sargent's letters Nos. 1 and 2 are put in evidence and are marked Complainant's Exhibit "Copies of Sargent's letters No. 1 and No. 2," J. B. Mills, Special Examiner, and it is agreed that they are true copies of letters written by J. B. Sargent and put in evidence in case of Tucker *vs.* Burditt & Williams, except the copy of letter No. 2 is undated.)

Ans. I don't recollect having written the two letters of which this is a copy. I think I wrote him, Mr. Tucker, some letters of an off-hand character, but I did not consider them of sufficient consequence to take copies of them and have no copies.

Cr.-int. 209. Did you not state, in answer to Cr.-int. 89, in your deposition in the case of Burditt & Williams that the first of these letters, of which this is admitted to be a copy, was written by you to Mr. Tucker? I will quote the question and answer: Cr.-int. 89. "Please examine the letter now shown you; state whether it was written by you to Mr. Tucker at or about the time at which it bears date." Ans "It was written by me and I presume at the time it was dated."

Ans. I was shown the original letter at that time; that was in my handwriting, as I believe, but whether this copy is a true copy is more than I know.

387 Cr.-int. 210. In this "Sargent letter No. 1" you say before ever doing any bronzing we obtained copies of your patents and have kept clear of them; will you explain that statement?

Ans. That statement could not have been correct, because we did various kinds of bronzing as early as 1852, to my knowledge, as has been shown by testimony offered in this case.

Cr.-int. 211. You also say in the same letter, "We have never bronzed our work in the manner described in your patents;" will you explain that statement?

Ans. We had never bronzed our work in the particular manner described in your patent, your patent being limited to the particular description therein—that is to say, by the use of linseed oil or other vegetable oil, without any admixture of turpentine or varnish—nor was the process exactly as described in your patent, by putting on oil and wiping it off, so that our mixture having been different from clear linseed oil or other clear vegetable oil, clear, I probably supposed, with my then knowledge of the construction of your patent, that the processes used by Mr. Brocksieper and by Mr. Bradford, as described in the evidence in this case, as well as the bronzing that we have done at New Haven by the use of varnish with coloring matter in it and obtaining color by heat only, was outside of his patent.

Cr.-int. 212. It appears by the first sentence of this letter, which

is, "We have received your book of printed evidence in the case of Hiram Tucker *vs.* Tucker M'f'g Co.," that you had seen the evidence already given in that case, does it not?

Ans. I have no idea that I ever read so much as a whole page of that book, although Mr. Tucker sent it to me, as I believe. I never consulted with counsel concerning it, so far as I remember, and do not know, and never did that I am aware of, the merits of the controversy in that case nor the process used by the Tucker M'f'g Co.

Cr.-int. 213. I will read the other clauses of the letter and give you an opportunity to make any explanation of them that you can. "When you were here the other day and talked so positively about our infringing your patents, I took it for granted that we had, unknown to me, been making a change from our old way and had gone to infringing. I told you, however, I thought we were
388 clear. On investigation, however, I find that we have not made the change; that we never did and do not infringe your patents."

Ans. I do not know that any explanation is necessary that is not in the letter itself. I do not remember under what circumstances nor under what impressions or opinions of my own, correct or incorrect, the letter was written. The writing of it has passed entirely from my memory, and the circumitances attending it.

Cr.-int. 214. Did you, in answer to Cr.-int. 90, propounded to you in the case of Tucker *vs.* Burditt & others, make the following reply—I will quote the question and answer: Cr.-int. 90. "In this letter you say, 'Before ever doing any bronzing we obtained copies of your patents, and have kept clear of them;' what did you mean by that statement?" Ans. "I say in the letter, 'We never "bronzed" our work in the manner described in your patents. Before ever doing any "bronzing" we obtained copies of your patents, and have kept clear of them.'" That clause refers, I have no doubt, to the bronzing of butts exclusively wherein there were straight lines of raised surfaces in the ornamentation, and at that time I associated Tucker's patent with the bronzing in straight lines, such as is on chandelier work, which I used to think was a necessary element of his patent, and that it must be done with linseed oil, pure and simple. We did not follow his patent in the coloring of the butts, not only not in the order of procedure, but we did not use clear linseed oil. The coloring of butts was done by heat alone, which I supposed avoided his patent, although the butts had the straight prominent lines, as in the chandelier work, which I had known as Tucker bronzing.

Ans. It appears that I did, and very likely my letter did refer to the bronzing of butts which was done by heat alone, as stated in the answer to the previous question, and I had formerly associated Tucker's patent with bronzing work having straight lines or prominent lines, such as shown on chandelier work, and which I did used to think was a necessary element of his patent, as stated in answer to Cr.-int. 90, in the case of Tucker *vs.* Burditt *et al.* I see nothing in the answer to Cr.-int. 90, in the case of Tucker *vs.* Burditt *et al.*,

inconsistent with my answer to the previous interrogatory in the present case.

389 Cr.-int. 215. This letter refers to an interview with Mr. Tucker apparently a short time before it was written. Do you remember the particulars of that interview?

Ans. I do not; except that I remember telling him at some interview, and I don't remember ever having had but one, that we had sufficient evidence to protect us in the process we used, showing that we used the processes, substantially, in years previous to his patent at New Britain, and that we were ready to test the question of the validity of his patent or our liability at any time. I don't remember the exact language used and I remember nothing else especially at the interview.

Cr.-int. 216. Will you please state whether the "Sargent Letter No. 2," a copy of which is now shown you, was written by you? It is agreed to be a copy of the original letter shown you when your deposition was taken in the case of Burditt and Williams, except that the date is omitted, and state also that date, if you remember it, on which the letter was written by you.

Ans. I have no recollection of having written the letter, but I may have done it when I felt in a fun-loving condition, partly mixed with an eye to business; but probably it wasn't written in serious earnest. I have no recollection of the date.

Cr.-int. 217. Did you say—in answer to Cr.-int. 98, propounded in the case of Burditt & Williams, when the original, of which this is agreed to be a copy, was shown you—did you say, "This is my letter?"

Ans. I have no recollection in the matter.

Cr.-int. 218. Did you on May 3d, 1880, give your deposition in suit of Hiram Tucker *vs.* Burditt *et al.*, said deposition being by agreement of parties to be also used in the suits of said Tucker *vs.* Otis T. Dana and of said Tucker *vs.* Bogman & Vinal, said three suits being then pending in the circuit court of the United States for the district of Massachusetts?

Ans. I did in some case; I don't know what the case was.

Cr.-int. 219. Did you, in the course of this deposition, give, in reply to the questions propounded to you as set forth in the copy now shown you, the answers therein contained?

Ans. Questions were asked me which I answered, and if the document now shown me is a correct copy of the original the questions and answers were as therein contained.

390 (Deposition put in evidence and marked Complainant's Exhibit "Sargent's Deposition." J. B. Mills, special examiner. It is agreed that a certified copy may be substituted for the present copy.)

Cr.-int. 220. Did you give that deposition referred to in Cr.-int. 218 under the advice and in presence of counsel?

Ans. Not in the presence or by the advice of my counsel that I remember.

Cr.-int. 221. Was the defence set up in those cases maintained wholly or partly at your expense?

Ans. I had nothing whatever to do with it except being called upon to give my testimony, which I did according to the best of my memory and recollection at that time.

Cr.-int. 222. Do I understand you that the defendants in this case bore no part of the expense of that defence?

Ans. Not a penny, except that I haven't been paid for my witness fees in the case, which, I suppose, are due me.

Cr.-int. 223. Did you attend at New Britain, when evidence for the complainant in reply was being taken in the case referred to, and had you read or been informed of the substance of the same before giving testimony in the case?

Ans. Whatever testimony I may have heard in New Britain was while I was waiting for my turn as witness, and I believe all the evidence I heard was that of a colored woman for the plaintiff. I may have read some of the testimony since, but am not sure; I have no recollection of any of the testimony given there, except that given by the colored woman, which created some merriment at the hearing while being given.

Cr.-int. 224. Did you know at the time of a stipulation filed in the case of Tucker *vs.* O. D. Dana, in Nov., 1880, wherein said defendant admitted the validity of the patent for the manufacture, so far as prior manufacture, sales, and use was concerned, thereby abandoning the defence in regard to which your testimony was taken and that of Bradford, Brocksieper, and others, your employés? If you did know of this stipulation say whether it was made after consultation with you, and with your consent?

391 Ans. I did not know anything about it and had nothing to do with it and didn't hear of it that I remember, until since the decision in that case.

J. B. SARGENT.

J. B. SARGENT recalled.

Int. 1. Have you read over your testimony as above taken down by the magistrate?

Ans. I have.

Int. 2. If you have discovered any clerical error therein please point it out.

Ans. I am asked by Cr.-int. 188: "Are you positive that the finish described as bronze antique on page 20, as applied to two patterns of match-safes, was not a finish done with green powder or paint without high heat?" And I am made to say in the answer, "I am not positive that they were not bronzed in that way." I answered the question by saying: I am positive that they were not bronzed in that way.

Int. 3. Did you discover that mistake from your own reading of the deposition or was it pointed out to you by anybody else?

Ans. I discovered the error myself in reading the testimony.

No cross-interrogatories.

J. B. SARGENT.

392 RICHARD F. BURCHELL, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answered as follows :

Interrogatory 1. What is your name, age, residence, and occupation?

Ans. Richard F. Burchell ; age, 50 ; residence, New Haven ; occupation, foreman of Sargent & Co.'s iron foundry.

Int. 2. How long have you been engaged with Sargent & Co., in connection with the foundry department of the business, or with their predecessors?

Ans. I don't think it is quite seventeen years. I think it will be seventeen in May.

Int. 3. Did you go into their employment before or after they came to New Haven?

Ans. Before they came to New Haven, about six months I should guess. I went there in the fall.

Int. 4. And how long have you been foreman in the iron foundry department of their business?

Ans. Well, I have been foreman all the time I have been there. It might be a few days when I first went that I didn't take hold. I engaged with him as foreman.

Int. 5. What had been your business before you went into their employment?

Ans. I was foreman of the Branford Lock M'f'g Co.

Int. 6. And before that what had been your employment?

Ans. I was in the employ of the Russell & Irwin M'f'g Co., as a workman.

Int. 7. How long have you been engaged in this business?

Ans. Well, as near as I can estimate about thirty-two years ; from thirty-one to thirty-two years.

Int. 8. Is there a kind of casting known as flask casting?

Ans. Yes, sir ; small casting always made in flasks ; we called them snap flasks.

Int. 9. How long have you practiced the casting of iron of that class?

393 Ans. I practiced it during my whole time ; it has been my business.

Int. 10. Is there a term used in this class of casting known as facing?

Ans. Yes, sir.

Int. 11. What is the object of facing?

Ans. To get the surface of your casting smooth—fine smooth surface ; that's the object.

Int. 12. Please explain the mode in which castings are made smooth by this facing operation.

Ans. After you make your mold and take your pattern out of your mould you then shake your facing on and put the pattern back into the mould and press it enough to fasten the facing into the sand—enough to hold it in its place.

Int. 13. You say that you shake the facing into the first impression which the pattern has made in the mould; of what substance is that facing composed?

Ans. Well, I don't know that I could answer that question—different kinds—I sometimes use flour and charcoal; sometimes black lead and charcoal; sometimes we use pulverized soap-stone and charcoal.

Int. 14. How long have you known and practiced this art of facing as applied to flask castings?

Ans. I knew it very shortly after I went into the business.

Int. 15. Do you remember when it was that you first practiced it?

Ans. To any extent was with Russell & Irwin M'f'g Co. that I practiced it.

Int. 16. Do you remember about how long ago that was?

Ans. Twenty-five or twenty-six years ago.

Int. 17. Will you look at the exhibit now shown you, marked Defendants' Exhibit "Art Casting Pattern No. 1," and say whether or not it comes within the class known as patterns for flask castings?

Ans. Yes, sir; that takes a small flask.

Int. 18. What do you say as to whether or not it is to be classed among the kind of patterns to be used in the facing of castings?

Ans. I should say it did.

394 Int. 19. Do you recognize that pattern?

Ans. I do; yes, sir.

Int. 20. When and where did you first see it?

Ans. I first saw it in the pattern-room of Sargent & Co.—pattern safe rather. I think it was in the winter of 1863, in New Britain.

Int. 21. Look at defendants' exhibit, marked "Ruff Art Exhibit Casting from Mould," and say whether or not it is what you recognize as a faced casting.

Ans. I recognize that as such.

Int. 21. Did you remove from New Britain to New Haven when the business came here in 1864?

Ans. Yes, sir; I did.

Int. 23. What was then done—I mean upon their removal to New Haven—with this pattern marked "Art Casting Pattern No. 1?"

Ans. It was removed by me and laid away in the pattern safe in New Haven.

Int. 24. Will you please look at the casting now shown you, marked Complainant's Exhibit "Rough Casting," and say whether that is a fair specimen of faced casting such as you would be willing to turn out from your foundry to be finished like "Art Casting No. 1?"

Ans. I should say not.

Cross-examination by Mr. LOOMIS:

Cr.-int. 25. Please look at Defendants' Exhibit "Ruff Art Exhibit Casting," and say what treatment the surface has received since it came from the mould in condition of Defendants' Exhibit "Ruff Art Exhibit Casting from Mould," if you can tell from inspection.

Ans. "Ruff Art Exhibit Casting" has been cleaned; that hasn't; Ruff Art Exhibit Casting isn't quite as fine a casting as the other.

R. F. BURCHELL.

395 HENRY F. PECK, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. Henry F. Peck; age, 52; residence, New Haven; occupation, manufacturer.

Int. 2. Did you formerly reside in New Britain, Conn.?

Ans. Yes, sir.

Int. 3. During what years and up to what time?

Ans. I was born in New Britain; lived in New Britain until 1855. In 1855 I went out West and remained a year, and returned and remained in New Britain until the spring of 1862.

Int. 4. In what employment were you before [you] left New Britain in 1855?

Ans. I was with the Peck & Walter M'f'g Co. as a shipping clerk.

Int. 5. And about how long had you continued to hold that station until you left in 1855?

Ans. I held the position from the organization of the company until 1855. I don't remember now what year the company was organized.

Int. 6. Can you state about how many years you acted as shipping clerk for the Peck & Walter Co.?

Ans. I don't remember.

Int. 7. Could you tell whether it was more than one or not?

Ans. I should say it was two or three years.

Int. 8. You say that in 1855 you went West and remained about a year, and then returned to New Britain; did you return to the employment of the Peck & Walter Co. in any capacity on your coming back?

Ans. No, sir.

Int. 9. What duties devolved upon you, or did you perform, while you were shipping clerk for the Peck & Walter M'f'g Co.?

Ans. My chief duties were to take the orders as they were received and lay out the goods and box and ship them.

Int. 10. What else, if anything, did you do?

396 Ans. Occasionally I assisted in the packing-room.

Int. 11. Will you please look at this article marked "Art Casting No. 1" and say whether or not you recognize it as something of the same character, style, and finish as you have seen before this time?

Ans. I recognize this article.

Int. 12. When and where did you first see articles of that form finished in that style?

Ans. I saw them at different times while in the employ of the Peck & Walter M'f'g Co.

Int. 13. What occasion or opportunities did you have for seeing them at that time?

Ans. I saw them in the packing-room; they were brought in there as they were finished; sometimes I saw them in the hands of Mr. Brocksieper, who was then in the employ of the Peck & Walter M'f'g Co.

Int. 14. What was done with these articles after they were brought in their finished state into the packing-room?

Ans. They were packed up and sent away to market to customers.

Cross-examination by Mr. LOOMIS:

Cr.-int. 15. In what year did your employment with the Peck & Walter M'f'g Co. begin?

Ans. It began with the formation of the company.

Cr.-int. 16. Was that before or after you went West?

Ans. It was before I went West.

Cr.-int. 17. What is your present occupation?

Ans. Manufacturer of brass goods for plumbers—plumbers' goods.

Cr.-int. 18. How long have you been engaged in this branch of manufacture?

Ans. Ever since I have been in the city—since 1862.

Cr.-int. 19. Does the manufacture of plumbers' goods involve the finishing of ornamental cast-iron?

Ans. No, sir.

Cr.-int. 20. Did the Peck & Walter M'f'g Co. at this time finish goods of the same pattern as "Art Casting No. 1" in any other way? If so, please describe the various styles.

397 Ans. I saw some of them made in gold bronze. I am under the impression that occasionally they were japanned.

Cr.-int. 21. Were they not also painted?

Ans. I don't remember to have seen any painted.

Cr.-int. 22. Did they at this time use a brown japan finish upon cast-iron hardware, while you were in the employ of Peck & Walter?

Ans. I do not remember.

Cr.-int. 24. Describe the other styles of finish which you remember as applied to cast-iron hardware by the Peck & Walter M'f'g Co. while you were in their employ?

Ans. I have already mentioned the gold bronzed and the japanned, and they also had the dark bay horse.

Cr.-int. 24. What was the name applied to the finish upon Defendants' Exhibit "Art Casting No. 1," if you remember?

Ans. I don't know that I ever heard it mentioned; at least I don't remember it.

Cr.-int. 25. What was the character of the surface, if you remember, of the goods which you have testified as made by the Peck & Walter Co.? Have you any recollection as to the thickness or thin-

ness of the material employed on the castings to which you have testified as seen by you in Mr. Brocksieper's hands?

Ans. I am under the impression that they were made as thin as they could be made, and have them sound, in order to bring out a clear and smooth surface.

Cr.-int. 26. Please look at the article now shown you and state whether the color and finish approaches that seen by you on the goods of the Peck & Walter Co. of the class before referred to.

Ans. Similar in color, but not as bright.

Cr.-int. 28. Would not the fact that the surface of the iron casting being not so smooth account for the difference in brightness?

Ans. It would seem so to me.

(The article above referred to is put in evidence, and it is marked Complainant's Exhibit "L," J. B. Mills, Special Examiner.)

398 Redirect examination by Mr. BEACH:

Redirect int. 28. Look at Defendants' Exhibit "Art Casting No. 3," and say whether or not it correctly represents the style and finish of goods of the same class as "Art Casting No. 1," which, in answer to Cr.-int. 20, you say you saw, that were made in gold bronze?

Ant. I don't remember distincly about their being made in just this way; I do remember the surface being made all over like that bronze.

H. F. PECK.

Hearing adjourned until Saturday, February 26th, 1881, at 10 o'clock a. m.

FREDERICK W. BROCKSIEPER, recalled by the defendant, answered as follows:

Int. 1. You have already been examined as a witness in this case, have you not?

Ans. Yes, sir.

Int. 2. In the deposition you gave the other day you were asked as follows: Cr.-int 126. "Enumerate the articles to which the finish known as antique bronze was applied by the Peck & Walter Co.," and you answered: Ans. "I cannot tell all the articles to which the name antique was applied. I can state all the articles to which I myself applied the name antique bronze, which were coat and hat-hooks, jamb-hooks, cupboard-catches, match-boxes, looking-glass stands, ornaments of different descriptions." Have you prepared any exhibits which exemplify in color, finish, and general appearance the match-boxes referred to by you in that answer?

Ans. I have.

Int. 3. Please look at exhibits marked Defendants' Exhibit "Match-box," being two patterns, and say whether or not they are the ones to which you refer in your last answer.

Ans. Them are the ones.

399 Int. 4. How nearly do the castings of the match-boxes of this exhibit resemble in their patterns the match-boxes made and sold by the Peck & Walter Co. before you left their employment in 1859?

Ans. They are cast from the same patterns that we made at that time.

Cross-examination by Mr. LOOMIS:

Cr.-int. 5. Were these exhibits, Defendants' Exhibits "Match-boxes," prepared by yourself?

Ans. They were.

Cr.-int. 6. When?

Ans. I cannot state positive; about a couple of months I guess; maybe three or four months ago.

Cr.-int. 7. Had they been prepared and finished and were they in the same condition they are now when you gave your deposition in this case?

Ans. They were.

Cr.-int. 8. Were they prepared at Sargent & Co.'s factory in New Haven?

Ans. They were.

Cr.-int. 9. State the exact process by which you prepared them, giving all the steps.

Ans. After receiving the casting I had the gates ground off, brushed them with a wire brush to remove the loose sand which may be on the casting, then the prominent parts were brightened by an emery felt wheel, then the surface sized with a mixture of equal parts of turpentine, linseed oil, and copal varnish, then they were baked over a blacksmith's forge until the required color was obtained.

Cr.-int. 10. You say in your answer to Int. 4, "They are cast from the same patterns that we made at that time." Who made the two patterns referred to?

Ans. I made the patterns, chased them, and gated them.

Cr.-int. 11. Where did you get your original design for these patterns?

Ans. The company furnished them.

400 Cr.-int. 12. Describe the original patterns as they came into your hands, as to color, appearance, and finish; I mean the originals from which you made the patterns referred to in the answer to 4th interrogatory.

Ans. I don't remember if they were wood, iron, or brass; I know that the design was furnished and I may have changed some of the design of the original; I don't remember now.

Cr.-int. 13. Did you sometimes finish match-boxes of these patterns with bronze powder?

Ans. I did.

Cr.-int. 14. Did you finish them sometimes with green powder?

Ans. I did.

F. W. BROCKSIEPER.

Hearing adjourned until Saturday, March 5, 1881, at 10 o'clock a. m.

NEW HAVEN, *Mar.* 5, 1881—10 a. m.

Hearing resumed. Parties present as before.

GEORGE H. SARGENT, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Ans. George H. Sargent; age, 52; residence, New York city; occupation, hardware merchant.

Int. 2. How long have you been engaged in the business of selling hardware in the city of New York?

Ans. Twenty-eight years.

Int. 3. Under what name or style was the business first carried on by you and what, if any, changes were made in the name of the firm?

Ans. Well, I was a clerk for nearly two years; then in business for myself, associated with my brother, J. B. Sargent, under the firm name of Sargent, Bro. & Co.

401 Int. 4. Was that firm at any time the selling agents for the Peck & Walter M'f'g Co., manufacturers at New Britain?

Ans. Yes, sir.

Int. 5. Do you remember what year it was when J. B. Sargent removed to New Britain?

Ans. Moved there with his family in 1856.

Int. 6. Was your New York firm at that time selling agents for the Peck & Walter Co., or the Peck & Walter M'f'g Co.?

Ans. Yes, they were.

Int. 7. How long did they continue to be the selling agents for them and for their successors?

Ans. Well, as long as they were in existence—that is, until the fall of 1857—under that name.

Int. 8. The question asks for how long the firm continued to be selling agents for them and their successors?

Ans. Sargent, Bro. & Co. and their successors, Sargent & Co., continued as selling agents as long as the Peck & Walter M'f'g Co. existed, and then continued for their successors.

Int. 9. At what locality in the city of New York did your firm carry on business during the three or four years after Mr. J. B. Sargent removed to New Britain?

Ans. 85 Beekman street.

Int. 10. State some of the different kinds or classes of builders' hardware received by you during that period as selling agents for the Peck & Walter M'f'g Co. or their successors.

Ans. Well, cupboard-catches, coat and hat hooks, and wardrobe-hooks, sash-fasteners, and shutter-knobs.

Int. 11. Look at the exhibits on the table and say whether you recognize any of them as exemplifying in style, color, and finish any of the articles mentioned by you in your last answer as having

been received from New Britain, and sold by your firm at No. 85 Beekman St., within three or four years succeeding the time when Mr. Sargent removed to New Britain?

Ans. Yes, we had them all.

(The witness makes the above answer after looking at Defendants' Exhibits "L," "J," "J²;" Defendants' Exhibits "H," "H²," "G;" Defendants' Exhibit "Brocksieper Sash-fastener.")

402 Int. 12. Do you remember what name was given at that time to these articles or any of them?

Ans. We used to call them antique bronze, and antique and gold bronze.

Int. 13. What became of these goods after they were consigned to you from New Britain?

Ans. We sold them.

Int. 14. Look at the exhibit marked "Art Casting No. 1," and tell us what you know, if anything, about articles of that style and finish.

Ans. We had those there on sale.

Int. 15. At what locality were you when you had those articles like "Art Casting No. 1" on sale?

Ans. 85 Beekman St.

Int. 16. When did you first begin to carry on your business at 85 Beekman St.?

Ans. In the spring of 1854.

Cross-examination by Mr. LOOMIS:

Cr.-int. 17. At the time you were engaged in selling hardware in the city of New York as selling agent for the Peck & Walter M'f'g Co. were you at the same time acting as selling agents for any other concern?

Ans. Yes, sir.

Cr.-int. 18. Please enumerate them.

Ans. For Peck Smith M'f'g Co., East Hampton Bell Co., Hart M'f'g Co., Sargent & Bro., and there might have been some others; I don't remember them.

Cr.-int. 19. In what year did your concern begin to act as selling agents for the Peck & Walter M'f'g Co.?

Ans. Well, I came to New York in 1853 and went with my brother, as clerk, who was then acting as agent for the Peck & Walter M'f'g Co. or their predecessors, Peck, Walter & Co. He continued to act as such agent until December, 1854, when I went in with him as partner under the name of Sargent, Bro. & Co., and we continued their selling agents as long as they were in existence.

403 Cr.-int. 20. At the time you first went into the employ of your brother, in 1853, was he the selling agent of the different concerns you have enumerated in answer to Cr.-int. 18?

Ans. I don't remember. I think he represented part of them.

Cr.-int. 21. Enumerate the different kinds of finish applied to the goods sold by the concern of which your brother was a member

from the time you went into his employ up to the time your brother removed to New Britain, including all the styles made by the manufacturers for which he was selling agent.

Ans. The Hart M'f'g Co. sent us some japanned goods, like chest handles and barrel bolts; Peck Smith M'f'g Co. sent coffee-mills and carriage-bolts and tin spoons; East Hampton Bell Co. sent bells; Sargent & Bro. sent cards; Peck & Walter M'f'g Co. sent brass goods japanned goods, and bronze goods; I think some silver-plated goods,

Cr.-int. 22. Do I understand you that the only goods sold by your then concern, ornamented in imitation of bronze, were those made by the Peck & Walter M'f'g Co. or their predecessors at that time—that is, before you brother came to New Britain?

Ans. Yes.

Cr.-int. 23. You were familiar, were you not, with the different kinds of finish applied to cast-iron hardware at that time by manufacturers of hardware?

Ans. Yes, pretty familiar

Cr.-int. 24. Will you describe the different finishes applied to cast-iron hardware by manufacturers before your brother came to New Britain?

Ans. Well, they were japanned, and they were what we called antique bronze, and we had a green and a gold bronze, and antique and gold, though I am not sure about the gold and antique and gold up to that time, it is so long ago, except as to the horse, that we had in antique and japanned and gold bronze and a brass.

Cr.-int. 25. How many different colors of japan finish do you remember as at that date applied to cast-iron hardware?

Ans. Japan finish is black, as far as I know.

404 Cr.-int. 26. You are still connected with the concern of Sargent & Co., are you not?

Ans. Yes, sir.

Cr.-int. 27. You have been connected with them ever since you first went into the employment of your brother, as testified by you?

Ans. Yes.

Cr.-int. 28. When did you first have on sale articles of the pattern of Defendants' Exhibit "Brocksieper Sash-fastener?"

Ans. Well, before 1859.

Cr.-int. 29. In how large quantities before 1854 did you sell articles of the same pattern as "Art Casting No. 1?"

Ans. I didn't sell goods of any kind before 1854. I wasn't a salesman.

Cr.-int. 30. In how large quantities before 1854 did your then concern sell articles of the pattern of "Art Casting No. 1?" I refer to the pattern simply, however finished.

Ans. That I don't know, because I was cashier, and not salesman.

Cr.-int. 31. Are you able to state the names of any concerns to whom you sold goods like in pattern Defendants Exhibits "L," "J," "J^2," "H," "H^2," "G," and Defendants' Exhibit "Brocksieper Sash-fasteners," and Defendants' Exhibit "Art Casting No. 1?" If so, please give their names and places of business.

Ans. Well, in 1858, I think it was, I sold a lot of goods like Exhibit "H," coat and hat hooks, to a man named M. Devoy, for a North river steamboat. With regard to the others, I don't remember any special sales, but they were sampled and sold in various small quantities to various parties, whose names I don't remember now. M. Devoy did live in New York; his place of business was in New York.

Cr.-int. 32. Did you sign and swear to an affidavit filed in this case in respect to a motion for a temporary injunction therein; and, if yes, did you state in that affidavit as follows: "I have examined the exhibits referred to in the affidavits of Frederick W. Brocksieper and by J. B. Sargent, marked respectively 'Brocksieper Antique Bronze,' 'Brocksieper Gold and Brown Bronze,' and 'Sar-
405 gent's Sash-fastener;' they are accurate models of the style finish, and color of the articles of manufacture sold by my firm as a regular article of sale, as above stated, for some years prior to 1862?"

Ans. Yes.

Cr.-int. 33. If you desire to modify that statement please do so.

Ans. No, I do not.

Cr.-int. 34. After you ceased to be cashier what was your occupation? State when you ceased to be cashier.

Ans. I ceased to be cashier in 1854. I was selling goods and general store manager after that.

GEORGE H. SARGENT.

NEWTON W. PERKINS, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answered as follows:

Int. 1. What is your name, age, residence, and occupation?

Ans. Newton W. Perkins; age, 42; residence, New Haven, Conn.; occupation, traveling salesman for Sargent & Co.

Int. 2. Where did you reside in the year 1857?

Ans. New Britain, Conn.

Int. 3. How long did you continue to reside there?

Ans. I resided there until, I think, about September, 1861.

Int. 4. Where did you then go?

Ans. I enlisted in 1861 and went into the army.

Int. 5. How long did you remain in the army?

Ans. I remained in the army until April 26, 1866.

Int. 6. What was your employment in New Britain during 1857 and up to the time you enlisted in 1861?

Ans. I was in the packing department—a packer—for J. B. Sargent it was then.

Int. 7. Who had charge, during that period, of the factory in the packing room of which you were employed?

Ans. J. B. Sargent.

406 Int. 8. Was builders' hardware among the kinds or classes of manufacture which came into the packing-room during that time?

Ans. It was.

Int. 9. Were any of these articles of builders' hardware that came into the packing-room finished or ornamented in imitation of bronze, or what was known or called bronze goods?

Ans. They were.

Int. 10. Was there more than one kind of so-called bronze goods?

Ans. Yes.

Int. 11. How many kinds were there and how were they called or known; by what name?

Ans. Well, there was the black and gold bronze, French bronze, antique bronze, dark bronze, dark and gold bronze; antique and gold bronze perhaps we called it.

Int. 12. Please look at the exhibits on the table and say whether you recognize among them any articles as identical in style and finish with the goods which you then knew under the name of antique bronze or under the name of dark and gold bronze.

Ans. Well, these are pretty nearly alike, these two things you have here (indicating Defendants' Exhibits "H," "H²," "G," and "J," "J²," "L"), but I should call that the antique bronze (witness refers to Defendants' Exhibit marked "H," "H²," and "G"), and this exhibit I should call the antique and gold (referring to Defendants' Exhibit "J," "J²," and "L"). It is pretty hard to distinguish these two apart (referring to "H," "H²," "G," and "J," "J²," and "L," respectively).

Int. 13. What was done with these "antique bronze" and "dark and gold bronze" goods after they came into the packing-room?

Ans. They were packed up and sent away as regular merchandise.

Int. 14. Look at Defendants' Exhibits "Art Casting No. 1" and "Art Casting No. 2," and say if you ever saw articles like those in pattern and color and finish during the time that you were employed in the packing-room of the factory at New Britain.

407 Ans. I did see these.

Int. 15. What was done with them after they came into the packing-room?

Ans. They were packed and sent away.

Cross-examination by Mr. LOOMIS:

Cr.-int. 16. In whose employ are you and for how long have you been in that employ?

Ans. Sargent & Co.'s; I think from the spring of 1867 up to the present time, with the exception of two years.

Cr.-int. 17. What has been your occupation since you first went into the employ of the predecessors of Sargent & Co.? State fully.

Ans. I was, from the summer or fall of 1861 until the spring of 1866, in the army; from April, 1866, until, I think, April, 1867, I was at my home in Woodbridge, Conn., and from that time until, I should say, six years ago, I should say I was with Sargent & Co.; two years I was with Judd M'f'g Co., and from that time until this, I should say, I was with Sargent & Co.

Cr.-int. 18. How long have you been a salesman?

Ans. To the best of my recollection twelve years; two years that I was with the Judd M'f'g Co. out.

Cr.-int. 19. What was your occupation before you became a salesman?

Ans. Before I went onto the road I was, I think, the years I was in the army from 1861 to 1866, and one year at home recuperating.

Cr.-int. 20. Have you had any experience in the practical business of applying finishes to cast-iron hardware?

Ans. None at all.

Cr.-int. 21. You have testified to the exhibits referred to in your previous answers from your recollection of the finish as seen by you in 1857, have you not?

Ans. Entirely.

Cr.-int. 22. Are you familiar with the different colors produced by brown japan over bright iron surfaces?

Ans. Well, I wouldn't wish to consider myself an expert.

408 Cr.-int. 23. Have you ever seen the result produced by brown japan applied over a surface of bright iron and then baked at an ordinary japanning heat, to your knowledge?

Ans. I have not.

Cr.-int. 24. How does the surface on Complainant's Exhibit "L" differ from that on "Art Casting No. 1?"

Ans. Well, I should say on Exhibit "L" it was japanned. On this—referring to "Art Casting No. 1"—I should say it was a linseed oil finish baked on it at a high heat.

Cr.-int. 25. Did you sign and swear to any affidavit filed in this case in reference to the motion for temporary injunction against Sargent & Co., and did said affidavit contain the following statement: "I have also examined the sash-fastener marked Exhibit 'Sargent Sash-fastener,' and I recognize it as being identical in style and finish with the sash-fastener made by the company between 1857 and September, 1861, and of which very considerable quantities passed through the packing-room and were packed by me for the market, and were shipped from the factory for sale in common with other articles made by the company." If yes, do you wish to modify that statement?

Ans. I did swear to the affidavit. I do not wish to modify the statement. The words used here, "very considerable quantities," I might change to considerable quantities. I wouldn't modify it in any other particular.

NEWTON W. PERKINS.

THOMAS J. ATKINS, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by JOHN S. BEACH, Esq., of counsel for the defendant, answered as follows:

Int. 1. What is your name, age, residence, and occupation?

Ans. Thomas J. Atkins; age, 43 years; reside in Brooklyn, N.Y.; occupation, salesman for Sargent & Co.

Int. 2. Where did you reside from 1857 to 1861?

Ans. Brooklyn, N.Y.

Int. 3. In whose employment were you during that period?
409 Ans. Sargent & Co., or their predecessors.
Int. 4. In what capacity?
Ans. Salesman.
Int. 5. What was the busines carried on by Sargent & Co., or their predecessors, during that period?
Ans. Selling hardware.
Int. 6. Where was the business carried on?
Ans. New York city, 85 Beekman St.
Int. 7. What business relations did they sustain during that period to the Peck & Walter M'f'g Co., of New Britain, or to the successors of that company?
Ans. Selling agents.
Int. 8. Did builders' hardware constitute one class of goods manufactured by the Peck & Walter Co., or their successors, consigned for sale to these selling agents in New York during those years?
Ans. It did.
Int. 9. Please enumerate some of the articles of builders' hardware that were so consigned for sale during that period.
Ans. Bolts, coat and hat hooks, sash-fasteners, cupboard-catches, drive-hooks, screw-hooks, wardrobe-hooks.
Int. 10. Were any of these articles which you have enumerated ornamented in imitation of bronze?
Ans. Yes, sir.
Int. 11. Was there more than one kind of this imitation bronze?
Ans. Yes, sir.
Int. 12. Please describe these different kinds—I mean by what name they were known in your trade in dealing with customers.
Ans. French bronze, gold bronze, antique bronze, black and gold, dark and gold.
Int. 13. Did the firm have a sample board showing the different kinds of goods they had for sale?
Ans. Yes, sir.
Int. 14. Which, if any, of these different kinds of bronzing were shown by samples on the sample board?
Ans. They were all.
Int. 15. Look at the exhibits on the table and say whether
410 you recognize any of these articles as correctly representing, in style and finish, the articles you have enumerated as being on the sample board for sale and sold by you while in the employment of Sargent & Co., or their predecessors, in New York during the period you have named, from 1857 to 1861?
Ans. Yes, sir.
Int. 16. Please designate which you so recognize as being on the sample boards.
Ans. I recognize Defendants' Exhibit "H," "H²," and "G," and I also recognize Defendants' Exhibit "J," "J²," "L."
Int. 17. Do you recognize either of those exhibits as correctly representing the style you have referred to as known, in the character of their color and finish, as antique bronze?

Ans. Yes, sir; I recognize this one as the antique—referring to Defendants' Exhibit "H," "H²," and "G."

Int. 18. Do you recognize either of those exhibits as correctly representing in character, style, and finish the articles you mentioned as being known as dark and gold bronze?

Ans. Yes, sir. Witness refers to Defendants' Exhibit "J," "J²," "L."

Cross-examination by Mr. LOOMIS:

Cr.-int. 19. In whose employment are you, and how long have you been in that employment?

Ans. I am in Sargent & Co.'s employ, and been there with them or there predecessors since 4th Feb., 1856.

Cr.-int. 20. What has been your occupation, beginning with the time when you first went into their employ?

Ans. My first position was that of an entry clerk, until after July, 1856, say fall of 1856, as near as I can remember; then from that time until spring of 1857 I was receiving goods and putting goods away; I don't know just what name to call it; then I commenced selling goods about that time.

Cr.-int. 21. How many different patterns of hardware are at present sold by your concern—Sargent & Co.? I mean how many different articles.

Ans. Well, a very large number.

411 Cr.-int. 22. How large a number of different articles were sold by that concern and their predecessors between 1857 and 1861?

Ans. Quite a number.

Cr.-int. 23. How large a variety of finishes were applied to these articles?

Ans Half a dozen or more.

Cr.-int. 24. What proportion of the goods sold were finished in the style called antique bronze?

Ans. Not a large proportion.

Cr.-int. 25. Was the same style of finish, or any finish known by the same name, applied to hardware by other manufacturers at that time?

Ans. I don't know.

Cr.-int. 26. Who were the principal competitors of your concern between 1857 and 1861?

Ans. There was Russell & Irwin; P. & F. Corbin; the predecessors of Landers, Frary & Clark. That is all I think of now.

THOS. J. ATKINS.

(The affidavits of Newton W. Perkins and Thomas J. Atkins are put in evidence and are marked respectively Complainant's Exhibit "Perkins' Affidavit," J. B. Mills, Special Examiner, and Complainant's Exhibit "Atkins' Affidavit," J. B. Mills, Special Examiner. The affidavit of George H. Sargent is also put in evidence, and it is marked Complainants' Exhibit "George H. Sargent's Affidavit," J. B. Mills, Special Examiner.)

412 NEW HAVEN, *Feb.* 26, 1881—10 o'clock a. m.

Hearing resumed. Parties present as before.

The depositions of Purmont Bradford and F. W. Brocksieper, taken in the case of Hiram Tucker *vs.* Burditt & Williams, and shown to said witnesses in the course of this examination, are put in evidence and marked, respectively, "Bradford's first deposition," J. B. Mills, Special Examiner, and "Brocksieper's first deposition," J. B. Mills, Special Examiner.

JOHN E. EARLE, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by CHARLES E. MITCHELL, Esq., of counsel for defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Ans. John E. Earle; age 50; residence, New Haven; occupations, solicitor of patents.

Int. 2. What experience, if any, have you had in japanning or otherwise coating or treating metals with oil or oily solutions and heat?

Ans. I have been familiar with japanning and the construction of ovens therefor since 1862 or 1863. About that time I was called upon to examine ovens with a view to improvements therein, and witnessed many experiments of the effects of different degrees of heat on metals coated with japan and other similar compositions. Again, in 1864 or 1865, when the American Fish Hook Co. was organized, Dr. Crosby consulted me as to the construction of his ovens and the best methods of coating fish-hooks and articles made from steel wire, and since that time I have been familiar with japanning and coating articles as practised in numerous manufactories in this vicinity. About one year ago I was appointed by Judge Blatchford, as inspector, to examine the process employed by Wolfe, Kahn & Co. in manufacturing, coating, and tempering steel springs.

413 I have many times, since the issue of the Tucker patents, been called upon to examine articles made of iron and coated with reference to whether or not the process employed embodied the invention set forth in the Tucker patents.

Int. 3. Have you read and do you understand reissued letters patent No. 2355 to Tucker Manufacturing Company for "improved process of bronzing or coloring iron?"

Ans. I have and I do.

Int. 4. Please describe, in a condensed form, process therein set forth, as you understand it, in its practical use for the ornamentation of iron.

Ans. First, after the iron has been cleaned in the usual manner the surface is ground and polished; then, second, a thin coating of linseed oil is applied; the coating is defined as such as is best attained by applying the oil with a brush, then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement;

third, the article thus prepared is subjected to a high degree of heat in an oven, which changes the color according to the degree of heat to which it is exposed, the patent stating that the intensity of the heat should be sufficient to change a brightened, unoiled iron surface to a color varying from a light straw to deep blue; that would be from about 400° to, say, 550° Fahr.; the higher the degree of heat the darker or deeper would be the color; subsequently other like coatings of oil are applied, each coat treated in the same manner, the patent stating that black may be produced by repeating the coatings a sufficient number of times; these are the steps employed in the Tucker process, as I understand it to be defined in the reissue No. 2355.

Int. 5. Have you examined and do you understand letters patent reissue No. 2356 to Tucker M'f'g Co. for "improved manufacture from iron in imitation of bronze?"

Ans. I have and I do.

Int. 6. What do you understand to be the "new manufacture" set forth and described in the specification of description and claim therein?

Ans. I understand it to be for iron, the surface of which is treated to the thinnest possible coating of oil and subsequently heated as described in reissue No. 2355; in other words for iron ornamented by the process described in sain reissue No. 2355.

414 Int. 7. State what you understand to be the way in which the oil and heat coöperate to produce the result described in the two patents referred to, and state also what you understand to be the characteristics of the result which is produced?

Ans. I understand that the oil which is left upon the iron is only so much as enters the pores of the iron, and that in the heating process the iron and oil are oxidized together, so that in fact whatever oil remained thereon has become practically a part of the iron itself, and this is the peculiar characteristic of this process that the oil does not form such a coating on the surface as to be oxidized thereon, independent of the iron, or to form a surface or film covering the surface of the iron.

Int. 6. Please look at Tucker Exhibit "F," placed in evidence in connection with the deposition of Hiram Tucker, after question 11 of such deposition, and say whether it has the characteristics which you have pointed out as resulting from the process described.

Ans. From my experiments I should say that Exhibit "F" had been treated in accordance with the Tucker process, as I understand it, to several coats and heatings, and is a very good specimen of Tucker bronze, and has the characteristics pointed out by me in describing the Tucker process.

Int. 9. I call your attention to "Tucker Exhibit A," "Tucker Exhibit D," and "Tucker Exhibit D D," and — state how you understand they were finished.

Ans. The parts, after having been cleaned, were, I think, subjected to a coating of japan and baked or dried; then the surface ground and polished smooth and bright, then subjected to a high degree of heat, which would give to the metal the required color;

then when cool the surface was varnished and dried by heat or otherwise, which completed the finishing of the surface.

Int. 10. Have you witnessed the process of finishing practised by the defendants for butts like those referred to in the last question? And, if yea, state whether it corresponds with that which you have just described in your last answer from inspection.

Ans. I have, and it does correspond precisely.

Int. 11. Now will you please compare the process by which
415 the butts "A," "D," and "D D" were finished with that set forth and described in reissued letters patent No. 2355, stating whether the two processes are, in your opinion, substantially the same or substantially different, giving reasons for your conclusions.

Ans. I will give the steps in each, and request the examiner to write them in parallel columns—in the first column the Tucker process, and in the second or right-hand column the defendants' process:

Tucker Process.	Defendants' Process.
First. The iron is cleaned in the usual manner.	First. The iron is cleaned in the usual manner.
	Second. The iron is coated with japan.
	Third. The coated iron is baked to harden the japan.
Second. The salient surface of the iron is ground and polished smooth and bright.	Fourth. The salient surface of the iron is ground and polished smooth and bright.
Third. The polished surface is coated with oil and wiped off.	
Fourth. The oiled iron is placed in an oven about 400° Fah. and upwards, and heated until the desired color is attained, so far as it can be by the single application of oil. Other coatings and bakings increase the depth of color.	Fifth. The polished iron is placed in an oven heated to about 400° to 450° Fah., or until the desired color is attained. The higher the heat or the longer the exposure the deeper and darker the color, beginning from the natural color of the iron, through the lightest straw color, brown to blue, if required.
	Sixth. After the iron has been cooled it is dipped in varnish "couch or copal," and permitted to drip a short time.
	Seventh. The varnished iron is placed in an oven heated to a degree not exceeding 300° Fah. until the varnish is dry or hard.
416 In the Tucker process the oxidation is produced by the action of heat upon the combined oil and iron.	In defendants' process the color is produced by heat upon the iron alone.
The Tucker process produces a surface uncovered or uncoated.	Defendants' process necessarily leaves a coating upon the previously colored surface.

For these reasons I am of the opinion that the process practiced by the defendant is substantially different, not analogous to nor equivalent for the process described in the Tucker reissue No. 2355, as I understand it.

(Answer objected to because it attempts to construe the patent.)

Int. 12. In reply to question 9 of Mr. Tucker's deposition he states that he has read that portion of the affidavit of Henry B. Sargent, before filed in this case, which described the process employed by Sargent & Co. in the finish and ornamentation of butts; and in reply to question 10 he states that that affidavit confirms him in the opinion that defendants' goods were finished by substantially the same process described in his patents. Will you please read the portion of Mr. Henry B. Sargent's affidavit referred to, and state whether or not the process described in said affidavit is substantially the same as the Tucker process, and whether or not the description contained in said affidavit of the process employed by the defendants is substantially the same with that which you have assumed to be the defendants' process in giving your last answer.

Ans. The process described by Henry B. Sargent in said affidavit is that which I have assumed and believe to be the process practiced by the defendant, and is not "substantially the same as is described in my (Tucker) patents here in suit," for the reasons which I have heretofore given.

Int. 13. In reply to question 7 Mr. Tucker seems to think that the "pair of butts, Exhibit D," was coated while in the rough state with either a strong boiled oil or a thin coating of brown japan before the salient faces were ground; suppose he were correct in this
417 view, would it make any difference in any conclusion which you have heretofore expressed in reply to my former questions, the coating being of the thickness and character shown upon the bed of the exhibits?

Ans. No, sir; it would not.

Int 14. Why not?

Ans. Because the coating upon the bed has nothing whatever to do and does not in any way qualify the subsequent coloring of the iron by heat; the grinding process removes from the salient parts whatever may have been applied thereto, the only effect being to get the bed as black as possible, as a contrast between the bed and the bright salient points.

Int. 15. Mr. Tucker states, referring to defendants' process: "I consider it substantially the same, for the reason that it produces the same result, a surface on the iron which is composed of oxidized or modified oil or oil-varnish (which is the same thing for the purpose of practicing this invention) and oxidized iron, both produced by means of heat." What have you to say of that claim of Mr. Tucker?

Ans. Mr. Tucker is wrong in his conclusion, for the reason that in defendants' process there is no oil, modified oil, or oil-varnish on the surface of the iron when the heating or oxydation is produced, the result in defendants' process, so far as the oxydation of the iron is concerned, is produced by heat directly upon the iron and with-

out the intervention of any other material or substance, the surface of the iron being as bright, clean, and dry and free from any other substance or material as it is possible to make it when it is subjected to the action of heat for oxydation.

Int. 16. Have you taken any steps to illustrate the process described and claimed in complainant's reissued patent No. 2355.

Ans. I have.

Int. 17. Please describe each step in the process and illustrate them, if you can, by an exhibit showing the changes in the process reaching the final result.

Ans. I first took parts of several butts from a mass in the rough castings; that is, after they had been cleaned; then placed the parts in the hands of the polisher, who was at work grinding and polishing similar articles, and directed him to grind and polish the surface of the several parts in the usual manner, as he was
418 then practicing; this he did in my presence. The five parts of the butts — thus ground and polished and marked with a file XX. I then took four of the five parts, leaving the one part—here introduced and marked Defendants' Exhibit "Tucker's Process No. 1," J. B. Mills, Special Examiner—and, with a brush, those four parts were coated with linseed oil, then the surface rubbed as directed in the patent. Leaving one of these parts marked with a file XX I in the oiled condition—here introduced and marked Defendants' Exhibit "Tucker Process No. 2," J. B. Mills, Special Examiner—I placed the other three parts in an oven, the temperature standing at 420° Fahr., where they remained for fifty minutes; during that time I carefully watched the thermometer, which rose towards the last part of the time to 430° Fahr., the temperature at the end of the time, fifty minutes, then I removed them from the oven and let them cool; when thoroughly cold, leaving one of them marked XX II—here introduced and marked Defendants' Exhibit "Tucker Process No. 3," J. B. Mills, Special Examiner—a second coat of oil was applied to the other two parts and wiped as before, then placed in the same oven, the temperature standing at 450° Fahr., where they remained for thirty-five minutes, the temparature standing the same during that time. At the expiration of that thirty-five minutes I removed the said two parts from the oven and permitted them to cool, leaving one of these parts, marked XX III, in the condition it came from the oven—here introduced and marked Defendants' Exhibit "Tucker Process No. 4," J. B. Mills, Special Examiner—a third coat of oil was applied to the other part and wiped as before, then placed in the same oven, the temperature standing 420° Fahr., where it remained at the same temperature for twenty-five minutes. I then removed it from the oven; that part is marked XX IIII—here introduced and marked Defendants' Exhibit "Tucker Process No. 5," J. B. Mills, Special Examiner. This completed the application of the Tucker process. The oil from which the parts were coated I here offer, and it is marked Defendants' Exhibit Tucker Process Oil," J. B. Mills, Special Examiner.

Int. 18. Have you taken any steps to illustrate the process pursued by the defendants in making butts like the complain-

419 ant's Exhibits "A," "D," and DD," as described by you in answer to Int. 11?

Ans. I have.

Int. 19. If you have any exhibits to illustrate this process, will you please present them and give in detail the description of the steps taken in the process by which they were made and finished?

Ans. From the same mass of butts as those from which I took those referred to in my last answer I took other parts for the experiments. One butt, marked X, represents the condition of the castings as I took them from the mass—here introduced and marked Defendants' Exhibit "Sargent & Co. Process No. 1," J. B. Mills, Special Examiner. All the remaining parts were dipped in japan and permitted to drain in the usual manner. Leaving one of the parts, marked X II, to dry in the air—that part here introduced and marked Defendants' Exhibit "Sargent & Co. Process No. 1," J. B. Mills, Special Examiner—I placed the remainder of the parts in an oven where other work of like character was being baked, the temperature standing at 300° Fahr. and varying from that to 340° Fahr., until the japan was completely hardened; then the parts were removed from the oven and permitted to cool. Leaving one of the parts so japanned and baked, marked X III—here introduced and marked Defendants' Exhibit "Sargent & Co.'s Process No. 3," J. B. Mills, Special Examiner—I took the remaining parts to the grinder, the same who ground the parts for the "Tucker process," and the surfaces were ground and polished in like manner. Leaving one of the parts parts, marked X IIII—here placed in evidence and marked Defendants' Exhibit "Sargent & Co.'s Process No. 4," J. B. Mills, Special Examiner—in the condition it came from the polisher.

I then took the remaining parts and placed them in an oven, the temperature standing at 450° Fahr. for two hours and ten minutes. During the last half hour the temperature ran down to 400° Fahr. All the parts were then removed from the oven and permitted to cool. Retaining two of the parts, or one butt, marked X IIIII—here introduced and marked Defendants' Exhibit "Sargent & Co.'s Process No. 5," J. B. Mills, Special Examiner—as it came

420 from the oven, the remaining parts were taken to the varnish tub, and one part of each two which form a butt, being the pin part or the part with the two knuckles, was dipped in the varnish and permitted to drip. Of these I took took two parts: one butt, marked X III III—here introduced in evidence and marked Defendants' Exhibit "Sargent & Co.'s Process No. 6," J. B. Mills, Special Examiner—and permitted it to dry in the air. Another two parts, or hinge, marked X III IIII—here placed in evidence and marked Defendants' Exhibit "Sargent & Co.'s Process No. 7," J. B. Mills, Special Examiner—I placed in an oven together, the temperature standing at 300° Fahr., and where other articles, dipped in the same varnish, were being heated, and permitted it to remain two hours and thirty minutes, watching the thermometer, which scarcely varied during that time. This completed the work and exhibit marked "Sargent & Co.'s Process No. 7" is in the same condition in which I took it from the oven, except

the pintal, which I afterwards introduced to hold the two together. From the tub of japan used in the japanning operation I took a sample, which I here present, which is put in evidence and marked Defendants' Exhibit "Japan, Sargent & Co.'s Process," J. B. Mills, Special Examiner. From the tub of varnish I also took a sample, which I here present, and which is put in evidence, marked Defendants' Exhibit "Varnish, Sargent and Co.'s Process," J. B. Mills, Special Examiner.

(Answer objected to on the ground that it doesn't appear to show process practiced by defendants.)

Int. 20. Please look at Exhibits "Art Castings Nos. 1 and 2," and assume that they were made from faced iron castings, like Defendants' Exhibit "Ruff Art Exhibit Casting;" that the highest parts were smoothed or polished with sand or emery paper; that a preparation consisting of equal parts of linseed oil, copal varnish, and turpentine was then applied with a stiff brush, and of such thinness as to produce the results shown on said exhibits on being heated; that they were then held over a forge fire until the color was obtained by heat, so assuming compare process with the process described in the reissued letters patent 2355, giving the results of your comparisons and your reasons.

421 Ans. The coating, or whatever it was, applied to "Art Castings Nos. 1 and 2" was extremely thin and nearly what would have been the result of a wiped surface. Presuming the coating to have been that indicated in the question, the oil would, without doubt, cause the coating to readily enter the pores of the iron; heating the iron in that condition would produce a combined action upon the oil and iron surface, and would in fact be what is understood as the combined oxidation, and if not the process described in the Tucker patent it is in the nearest possible proximity thereto, and in my opinion is a process within that patent.

I find the coating or surface so thin that it is difficult, if not impossible, to remove any portion of it by scraping, except the surface and the iron be removed with it, which is a peculiarity of the Tucker process, and differing from the varnished surfaces in that in the varnished surfaces there is no difficulty in removing the coating without disturbing the surface of the iron. These facts confirm me in my opinion that said "Art Exhibits Nos. 1 and 2" embody the process described in the Tucker reissue."

Int. 21. State whether or not said "art exhibits" embody the "manufacture" described and claimed in reissued letters patent No. 2356.

Ans. For the reasons which I have given, that they embody the process of reissue No. 2355, they are necessarily articles such as described and claimed in reissue No. 2356.

(Objected to.)

Int. 22. Please look at the exhibits now before you, and marked respectively "O O," "A B," "C D," and "E F," and assuming that "O O" represents the knobs without any varnish or other material

having been applied thereon; that the six middle knobs in "A B" had one coating of English brown varnish thinly applied and were baked about 40 minutes at 430° Fahr.; that the six middle knobs on "C D" had another light coating of varnish and were baked in the oven at about 510° Fahr.; that the six middle knobs in "E F" were coated the third time and baked 45 minutes at 530° Fahr.—what do you say as to how far the process therein pursued corresponds with the process therein described in the reissued let-
422 ters patent No. 2355? In answering this question you may also assume that the two outside knobs on each end of these exhibits were baked at the same time as the six inside knobs, but without any coating of varnish thereon.

Ans. English brown varnish, as I understand it, has a considerable portion of linseed oil; the thin coatings applied as stated in the question and heated, other coatings successively applied and heated, the process approaches so near the process of the Tucker patent as to be substantially the same process, and I am of the opinion that with the thin coatings, as shown in exhibits, they do represent the process described in Tucker reissue 2355. The description in the reissue patent provides that successive coatings may be applied even until a black is produced, and that result is shown in the Exhibit "E F."

Int. 23. Look at Defendants' Exhibits "G," "H," "H²," and assuming that they are made from faced castings, cleansed from sand, and the highest parts brightened with sand or emery paper, then sized with a mixture consisting of equal parts of turpentine, copal, and linseed oil, applied very thin, then baked in an oven to the heat indicated by the colors shown upon the rear faces of the bases of the hooks, and say whether, in your opinion, they were produced by the process described in reissue 2355, and constitute the manufacture described in reissue 2356.

Ans. For the reasons given in the two preceding answers I am of the opinion that the exhibits referred to do embody the process and are the articles described in reissued patents 2355 and 2356.

Int. 24. Assume that Defendants' Exhibit "Match-box" was made in the same way, please answer the same question as to it.

Ans I shall give the same answer as to the last question.

Adjourned until Friday, March 4th, 1881, at 10 o'clock a. m.

423 NEW HAVEN, *March 4th*, 1881—10 a. m.

Hearing resumed. Parties present as before.

Int. 25. Please look at the exhibit now shown you, marked "Brocksieper Picture-frame," assuming it to be a cast-iron frame, cast smooth by the process of facing, and that the casting was then cleaned and the high edges or prominent parts polished with sand-paper and thinly coated with a mixture of equal parts linseed oil, turpentine, and copal varnish put on with a stiff brush, then baked over a blacksmith's forge until the color, shown in the portions not covered by the bronze-powder, was obtained, then coated again with the same

mixture and dried sufficiently by the air and the prominent parts covered with copper bronze; will you please state whether or not, as you understand it, this picture-frame comes within the process described in the complainant's letters patent No. 2355?

Ans. Whether or not the coating and heating the metal comes within the Tucker process patent depends upon the thickness or amount of coating; if it be so thick that the coating will prevent the action of heat upon the metal then it is not Tucker; but if it be of an oily composition and spreak so thin as to expose both the coating and the metal directly to the heat—that is, so as to produce what is called the combined oxydation of the oil and the iron—then it is the Tucker process; there is, therefore, a point between the two where it ceases to be the one and begins to be the other, and the exact point may be difficult to define; but judging from the appearance of the exhibit "Brocksieper Picture-frame," and from the fact that there is really no coating upon the surface, except that produced by oxydation, and that the coating was of an oily nature, as thin as possible to apply with a stiff brush, I have no hesitation in saying that the said exhibit was first treated by a process substantially that described in the Tucker reissue, and the copper bronze subsequently applied to the more prominent points.

(First part of the answer down to "Tucker process" objected to as construing the patent.)

(No cross-interrogatories.)

JOHN E. EARLE.

424 NEW HAVEN, *April* 8, 1881—10 o'clock a. m.

Examination resumed. Parties present as before.

WILLIAM R. SAWYER, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by John S. BEACH, Esq., of counsel for the defendant, answered as follows:

Interrogatory 1. What is your name, age, residence, and occupation?

Answer. Wm. R. Sawyer; age, 48; residence, New Haven, Conn.; occupation, silver-plater.

Int. 2. Where were you employed for some years before the war of 1861?

Ans. J. O. Smith's, in Middletown, Conn.

Int. 3. Did they have a factory at Middletown in which they carried on business?

Ans. They did.

Int. 4. At what time did your employment at the factory of J. O. Smith & Son begin and how long did it continue?

Ans. 1856 until 1861.

Int. 5. Is there any circumstance which enables you to fix the time at which you went into their employment? And, if so, state it.

Ans. I hired out on the day of election for Buchanan and Fremont at the Macdonough House, Middletown, to J. O. Smith & Son.

Int. 6. If there is any circumstance which enables you to fix the year at which you left the employment of J. O. Smith & Son please state that also.

Ans. 1861, when the 4th Connecticut Infantry went, which was afterwards changed to 1st Connecticut Siege Artillery.

Int. Do you mean that you enlisted into that regiment?

Ans. I do.

Int. Have you ever been employed by the firm of J. O. Smith & Son or their successors since you enlisted?

Ans. No, sir.

425 Int. 9. What was the business of J. O. Smith & Son while you were in their employment?

Ans. Stationers' hardware. Manufacturing stationers' hardware.

Int. 10. Will you enumerate some of the articles made by them in that class of manufacture?

Ans. Bill files, pen racks, pen racks with the base holding inkstands, desk weights, check cancellers.

Int. 11. What was the nature of your employment, beginning in 1856 to the time you enlisted in 1861?

Ans. I had a contract on the stationers' hardware.

Int. 12. When you first went into their employment, what were the articles for which you contracted? Please enumerate them.

Ans. Pen racks, desk weights, and bill files.

Int. 13. If there were any other articles of stationers' hardware, the manufacture of which the firm began after you entered their employment, say what they were.

Ans. Check cancellers.

Int. 14. Will you please state how soon after you entered the employment of the firm they began to make check cancellers? And state as fully as you can the circumstances under which the manufacture was begun.

Ans. Commenced in 1857. J. O. Smith bought a steel check canceller, and had some iron castings got out of the same pattern which I filed up the gate-ways, polished them to a high color and heated them over a forge to obtain the color, the color being mixed straw and blue; the color not being uniform, Marshall Graves told me to put on a light coat of oil, which would bring the color of the original sample, which was a straw color.

(Objected to as incompetent.)

Int. 15. What means did you employ to polish them to a high color?

Ans. Emery wheels.

Int. 16. How many edges did the cancellers have?

Ans. Three.

Int. 17. What was the character of these edges, and how produced?

Ans. Sharp; produced by grinding them.

426 Int. 18. About how long, after you commenced the manu-

facture of these cancellers, was it before you had this interview with Mr. Graves of which you have spoken?

Ans. It was when I was first making them; trying to get the color—experimenting on them.

Int. 19. At that time, you say, you found the color was not uniform, being mixed straw and blue; what, if any, coating was used upon the cancellers which presented this want of uniformity?

Ans. There was nothing used.

Int. 20. What coating was used after your interview with Mr. Graves?

Ans. Linseed oil.

Int. 21. How was the oil applied?

Ans. With a brush.

Int. 22. What was the character of the coating with reference to its being thick or thin?

Ans. Very thin.

Int. 23. You say that you heated them over a forge to obtain the color; will you please describe how the cancellers were held over the fire?

Ans. On a wire gauze with points running up which went into a hole in the bottom of the canceller.

Int. 24. How long did you continue to use this wire gauze, with points running up, for heating over forge fire?

Ans. Until 1858.

Int. 25. After 1858 what means were employed for heating them?

Ans. I oiled them and took them to Mr. Angevine; then he baked them in a kiln; afterwards he oiled them and baked them himself.

Int. 26. Do you mean that Mr. Angevine coated them with oil and baked them in the kiln before you left in 1861?

Ans. Yes, sir,

Int. 27. About how many kilns were there on the premises occupied by J. O. Smith & Son?

Ans. From ten to twelve.

427 Int. 28. Will you please describe their construction in a general way, and how they were heated?

Ans. They were sheet-iron kilns, heavy iron doors in front, bricked up on all sides but the front, where the door was; fire underneath the kiln—coal fire; heavy iron plate over the fire, from an inch to an inch and a quarter thick.

Int. 29. How hot did you get the cancellers when you heated them over the forge fire?

Ans. Hot enough to get a straw color.

Int. 30. While they were being thus heated over the forge fire what were you doing?

Ans. Taking care of my cancellers.

Int. 31. What do you mean by "taking care" of the work?

Ans. Seeing to it that I got the desired color.

Int. 32. Did you leave the work over the forge fire while the cancellers were being heated?

Ans. No, sir.

Int. 33. Were there any occasions when any of the cancellers got a greater degree of heat than you desired?

Ans. There was.

Int. 34. What was the effect which it produced, if any?

Ans. Blue.

Int. 35. Had you any means of knowing the degree of heat used in the kilns by Mr. Angevine except from the color produced?

Ans. No, sir.

Int. 36. State generally how many of these cancellers you finished with oil and heat in the manner you have described. I mean by the use of the forge fire up to 1858.

Ans. That would be impossible for me to tell how many; three, four, or five gross.

Int. 37. What became of them after you finished them?

Ans. Sent to the packing-room.

Int. 38. Please state, as well as you can, how many cancellers you made in this way with thin coating of oil after they began to be baked in the kiln.

Ans. About twenty-odd gross.

Int. 39. Up to what period did you continue to make these cancellers for the firm of J. O. Smith & Son?

Ans. As long as I was with them.

428 Int. 40. Have you recently finished any cancellers in the same way in which you made them while in the employment of J. O. Smith & Son?

Ans. Yes, sir.

Int. 41. Where did you finish them—I mean at what shop?

Ans. J. O. Smith's, in Middletown.

Int. 42. Did you finish any over a forge fire in the same way in which you were accustomed to do it before 1858?

Ans. I did.

Int. 43. Have you those articles with you?

Ans. I have.

(Witness produces three cancellers, and they are put in evidence and marked Defendants' Exhibit "Canceller A^1," "A^2," and "A^3," J. B. Mills, Special Examiner.)

Int. 44. Please look at these exhibits as they have been marked by the magistrate, and say what they respectively represent, beginning with the exhibit marked "Canceller A^1."

Ans. "A^1" represents a canceller that was heated over a blacksmith's forge without oil; "A^2" represents a canceller oiled and heated over a blacksmith's forge at the same time as "Canceller A^1;" "Canceller A^3" represents canceller oiled and heated over a blacksmith's forge at the same time as "A^1" and "A^2."

Int. 45. Which of these exhibits, if either, correctly represents the mixture of color of which you have spoken before you began to use linseed oil?

Ans. "Canceller A^1."

Int. 46. To what extent did the process used by you recently at

Middletown in making "Cancellers A^2" and "A^3" correspond with the process you formerly used at Middletown prior to 1858?

Ans. Exactly the same thing.

Int. 47. How were these exhibits "Cancellers" held over the forge fire?

Ans. In the same manner, with a wire gauze—point extending up on the wire gauze into the hole in the bottom.

429 Int. 48. Did you at the same time, when you were at Middletown recently, finish any of these cancellers in the mode employed after 1858, by coating with oil and heating in a kiln in the mode you have described as having been then used?

(Objected to.)

Ans. Yes, sir.

Int. 49. If you have them with you please produce them to be put in evidence?

(Witness produces three cancellers and they are put in evidence and marked Defendants' Exhibit "Canceller B^1," "B^2," and "B^3," J. B. Mills, Special Examiner.)

Int. 50. Please look at these exhibits, as they have been marked by the magistrate, and say what they respectively represent, taking them in their order as marked.

Ans. "Canceller B^1" represents canceller baked in kiln by Mr. Angevine without oil; "Canceller B^2" represents canceller oiled and baked in kiln with "B^1" by Mr. Angevine; "Canceller B^3," same as "Canceller B^2," oiled and baked in kiln at the same time as "B^1" and "B^2" by Mr. Angevine.

(Objected to as incompetent.)

Int. 51. Were you present at the time these cancellers were put into the kiln and baked by Mr. Angevine?

Ans. Yes, sir.

Int. 52. To what extent did the process used in finishing "Cancellers B^2" and "B^3" correspond with the process used at the factory of J. O. Smith, at Middletown, while you were in their employment, after 1858 and until you enlisted?

Ans. Exactly the same.

Int. 53. You say that the "Cancellers A^2" and "A^3" were baked by holding them over a forge-fire on wire gauze with points extending up into the hole in the bottom of the cancellers. Will you please look at the holder now shown you and say whether that is the thing which you used recently at Middletown in finishing these "Cancellers A^2" and "A^3?"

Ans. Yes, sir; it is.

(The holder is put in evidence and marked Defendants' Exhibit "Sawyer's Holder," J. B. Mills, Special Examiner.)

430 Int. 54. How far does this holder correctly represent that used by you at Middletown in finishing cancellers like "A^2" and "A^3" prior to 1858?

Ans. As near as any one could make two things alike.

Int. 55. Who made this exhibit "Sawyer's Holder?"

Ans. I did.

Cross-examination by Mr. LOOMIS:

Cr.-int. 56. How long have you resided in New Haven, and in whose employment have you been?

Ans. Between four and five years; in J. B. Sargent's employ.

Cr.-int. 57. What has been your occupation since you have been in the employ of J. B. Sargent?

Ans. Silver-plating.

Cr.-int. 58. For whom did you work before you went into the employ of J. B. Sargent, and when did you leave that employ?

Ans. I worked for W. R. Sawyer, Cincinnati, Ohio.

Cr.-int. 59. What was your occupation there?

Ans. Carrying on silver-plating.

Cr.-int. 60. State fully the other places at which you have been employed, if any, since you left the army.

Ans. A. E. Taylor M'f'g Co., New Britain, Conn.; Crane & Breed, Cincinnati, Ohio.

Cr.-int. 61. What was you occupation in each of these places, and in what years were you employed in each of them?

Ans. I was a silver-plater at A. E. Taylor's, and went there about six months after the war was over. I was with him about a year and a half; from there I went to Crane & Breed's, Cincinnati, Ohio, and was with them until I went into business for myself; from there I came to J. B. Sargent's.

Cr.-int. 62. How long and where were you in business for yourself?

Ans. Cincinnati, Ohio. I think about three months.

Cr.-int. 63. In what year?

Ans. I can't tell you without going back to books to tell when I came here. I can't tell the date.

431 Cr.-int. 64. Where was your place of business in Cincinnati, and what was the nature of it?

Ans. Second street. Silver and nickel plating.

Cr.-int. 65. Do you remember the number?

Ans. No, I do not. I can bring it to you.

Cr.-int. 66. Where had you been employed before you went into the employ of J. O. Smith, Middletown?

Ans. New York city.

Cr.-int. 67. How long and by whom?

Ans. By F. F. Sawyer; for several years; I can't tell now.

Cr.-int. 68. What did you do while in the employ of F. F. Sawyer, New York city?

Ans. Learned the trade of silver-plating.

Cr.-int. 69. Did you do silver-plating at the factory of J. O. Smith?

Ans. No, sir.

Cr.-int. 70. What did you do? State fully.

Ans. Stationers' hardware articles, pen racks, bill fileholders, pen racks with inkstands attached, desk weights, check cancellers.

Cr.-int. 71. In your answer to Int. 11 you say: I had a contract on the stationers' hardware. State as fully as you can the terms of that contract.

Ans. The terms were so much a gross and a dozen for the work.

Cr.-int. 72. What work?

Ans. Bill files, desk weights, pen racks, pen racks with inkstands attached, check cancellers.

Cr.-int. 73. How many men did you have in your employ when working as contractor for J. O. Smith?

Ans. Two and three.

Cr.-int. 74. Of what were these articles you have numerated made, of what material?

Ans. Cast-iron.

Cr.-int. 75. Did you do the casting?

Ans. I did not.

432 Cr.-int. 76. What did you do to the articles above enumerated?

Ans. Took them from the castings, filed the gates off, drilled the holes, riveted them together; when they needed facing off faced them off on an emery wheel; check cancellers, filed the gates off, drilled the hole in the bottom of the canceller, tapped the hole out, cut a thread in it, polished them up; in the first of making of them oiled and baked them over a blacksmith's forge, cut wires the right length, cut thread on one end of the wire, drilled a hole in the base, screwed the wire into canceller, put a hollow tube into base, slid the wire attached to canceller into hollow tube, and sent them to the packing-room.

Cr.-int. 77. How long after you entered the employ of J. O. Smith concern did you begin to make check cancellers?

Ans. 1857.

Cr.-int. 78. Had you finished any of the other enumerated articles over the blacksmith's forge previously to that?

Ans. No, sir.

Cr.-int. 79. Did you ever finish any of the other articles enumerated over a forge in the way which you have described in finishing the check cancellers at that time?

Ans. I have not.

Cr.-int. 80. Did any person or persons assist you in the process which you have described as practiced over the forge by you in finishing check cancellers?

Ans. They did.

Cr.-int. 81. Give their names and residences.

Ans. Marshall Graves, Middletown, Conn.

Cr.-int. 82. Is Marshall Graves, of Middletown, Conn., now living; and, if so, when did you see him last?

Ans. I think not. I haven't seen him since the war broke out.

Cr.-int. 83. Did you have any other person in your employ, or in any way so connected with you as to be familiar with the process which you have described as practiced by you over the forge fire?

Ans. Yes, sir.

433 Cr.-int. 84. Please give names and residences of all such persons.

Ans. Alfred Smith, James Nolan, both of Middletown, Conn. That is all that I think of.

Cr.-int. 85. When did you last see said Smith, and where does he live now?

Ans. I saw said Smith this morning. He lives in Middletown, Conn.

Cr.-int. 86. When did you last see said Nolan, and where does he live now?

Ans. Two or three weeks ago; somewhere within three weeks. He lives in Middletown, Conn.

Cr.-int. 87. Have you given the names of all the persons familiar with the process described as practiced by you at Middletown over the forge fire?

Ans. I can't say as to that; they were out and into the shop all the time. It was no secret; any one had a chance to see it.

Cr.-int. 88. How long a time did you continue the process described by you as practired over a forge on check-cancellers?

Ans. Until 1858.

Cr.-int. 89. Was it in 1858 that you began to make check-cancellers?

Ans. No.

Cr.-int. 90. When did you begin to make the check-cancellers?

Ans. In 1857.

Cr.-int. 91. In what month?

Ans. Early part; can't state the month.

Cr.-int. 92. Who furnished you the original model from which they were made?

Ans. James O. Smith furnished the original model check-canceller, made of steel, from which the pattern was made.

Cr.-int. 93. What color was it?

Ans. Straw-colored.

Cr.-int. 94. Who was it made by?

Ans. Claimed to be an imported one.

434 Cr.-int. 95. State again how you made your first cancellers as regards finish of surface after polishing.

Ans. I tried to heat them and get the color over a blacksmith's forge; got a straw and a blue color mixed up; no standard color; Marshall Graves was there when I was experimenting, and told me to put on a light coat of oil and I would get the color I was after—like sample.

Cr.-int. 96. What was Marshall Graves' business?

Ans. Blacksmith.

Cr.-int. 97. Then you never sent any check-cancellers to the market finished without oil, did you?

Ans. No, sir.

Cr.-int. 98. What sort of oil did you use in the process you have described over the forge?

Ans. Linseed oil.

Cr.-int. 99. Was it common raw linseed oil such as painters use?

Ans. No, sir; it was boiled oil.

Cr.-int. 100. How did you put it on?

Ans. In my experiments I put it on with a piece of paper and wiped it down there, afterwards used a brush.

Cr.-int. 101. Where is the factory in which you did this work?

Ans. Middletown, Conn.; Westfield Society.

Cr.-int. 102. Was there more than one building?

Ans. Yes, sir; there were six to my knowledge, and I don't know but more.

Cr.-int. 103. In which of these buildings did you work?

Ans. In the one furthest to the west, which had the water-wheel in it.

Cr.-int. 104. Were there other men employed in the same room in which you worked?

Ans. Some of the time

Cr.-int. 105. Give the names of all men so employed and their residences.

Ans. Abisha Doolittle is the only one that I remember; his residence is Middletown, Conn.

Cr.-int. 106. How many men were there so employed?

Ans. Abisha Doolittle used to have sometimes two and three at work for him.

435 Cr.-int. 107. Are you a contractor in the employ now of Mr. Sargent?

Ans. No, sir.

Cr.-int. 108. Can't you remember the names of any of the men who worked for Abisha Doolittle while you were there?

Ans. His son, John Doolittle, who was killed at the battle of Antietam; another by the name of Leverett Root; that is all I remember.

Cr.-int. 109. Where is Leverett Root now?

Ans. Last I ever saw him I met him in the army. I never saw or heard of him since.

Cr.-int. 110. As I understand you, these check-cancellers introduced by you as exhibits are made of cast-iron?

Ans. Yes, sir.

Cr.-int. 111. Where were the castings made and by whom?

Ans. I do not know, sir.

Cr.-int. 112. When and where did you first see them?

Ans. Mr. Bradford gave them to me three or four weeks ago.

Cr.-int. 113. Where?

Ans. Sargent's.

Cr.-int. 114. How many kilns were there at the factory of J. O. Smith, Middletown Conn., at the time you worked there?

Ans. From ten to a dozen.

Cr.-int. 115. Where were they situated.

Ans. In different buildings on the premises of J. O. Smith.

Cr.-int. 116. Name all the persons who had charge of such kilns, and state of which kiln each person that you name had charge—that is, where it was situated.

Ans. How do I know who had charge of all the kilns? I know some of them.

Cr.-int. 117. State who you know.

Ans. Edward R. Angevine, James Nolan, Mr. Shay; I don't know his first name. That is as far as I know.

Cr.-int. 118. For what were these kilns used?

Ans. For baking iron work, pen-racks, pen-holders, desk-weights, cash-boxes, powder-flasks, billhead mallenatype plates, check-canceller bottoms, check-canceller spears, with a light coat of linseed oil.

Cr.-int. 119. How were the check-canceller bottoms finished?

436 Ans. With some kind of paint. I don't know enough about paints to tell you what paint.

Cr.-int. 120. What color were they when they were done?

Ans. Greenish.

Cr.-int. 121. Do I understand you that they were baked in a kiln?

Ans. Yes, sir.

Cr.-int. 122. Who had charge of the kiln in which the check-canceller spears were baked?

Ans. Edward R. Angevine.

Cr.-int. 123. Where does he now live, and when did you last see him?

Ans. Middletown, Conn. I saw him to-day.

Cr.-int. 124. What time to-day did you last see him?

Ans. Well, since dinner.

Cr.-int. 125. Where was the kiln situated in which the check-canceller spears were baked?

Ans. In the building of James O. Smith, Middletown, Conn.

Cr.-int. 126. Is that kiln still standing?

Ans. I do not know.

Cr.-int. 127. Where were these Exhibit Check-cancellers "B^1," "B^2," and "B^3" baked?

Ans. Baked in kiln at J. O. Smith's or their successors.

Cr.-int. 128. In which one of the buildings of J. O. Smith is the kiln situated in which these Exhibits "B^1," "B^2," and "B^3" were baked?

Ans. In a building by the small reservoir that received water from the large one.

Cr.-int. 129. Is there more than one kiln in that building?

Ans. There is.

Cr.-int. 130. In which one of these kilns were these exhibits baked?

Ans. They never was numbered that I know of.

Cr.-int. 131. Will you kindly indicate, if you can, that kiln in which those Exhibits "B^1," "B^2," [and] "B^3" were baked, describe it, and distinguish it from the others in the same building?

Ans. Located in the brick building running along the side of the reservoir, somewhere along towards the center of the building; if anything, a little along towards the north side.

437 Cr.-int. 132. Are the kilns in that building all alike?

Ans. Cannot say.

Cr.-int. 133. In what kilns was the baking done to which you have testified while you were in the employ of J. O. Smith and their successors?

Ans. In the kiln which Edward Angevine put them in; what kiln he put them in I do not know.

Cr.-int. 134. What name, if any, did you apply to this finish upon the spears of check-cancellers?

Ans. Straw color, to imitate the steel one I had to go by.

Cr.-int. 135. Did you not say, in reply to Int. 51, that you were present at the time these spears were put into the oven and baked by Mr. Angevine?

Ans. Yes, I did, having reference to Exhibits "B^2" and "B^3."

Cr.-int. 136. I understand you, then, to be unable to say what kilns Mr. Angevine baked check-cancellers spears in when you were in the employ of J. O. Smith and their successors; am I right?

Ans. Right.

Cr.-int. 137. How, then, are you able to describe the construction of such kilns if you do not know what kilns he baked the cancellers in?

Ans. For the reason that I put the iron frames on to the sheet-iron of the kilns, to some of them, and also the hinges on to the iron doors of some of the kilns.

Cr.-int. 138. But you are not able to state definitely what kilns the cancellers were baked in, if I understand right your answer to cross-interrogatory 133, wherein you say, "Which kilns he put them into I do not know."

Ans. As he put them into different kilns according to his iron work; he could not put them in where they were baking tin, as the heat would not be high enough.

Cr.-int. 139. Are the kilns still standing on the Smith premises in Middletown in which, while you were in their employ, baking was done, including baking by Angevine, as you have described, of check-cancellers?

Ans. They have been burnt out; whether the old kilns were all burnt out or not I do not know; they have lots of kilns there now, and whether any of them are the old ones I do not know—I never asked the question.

438 Cr.-int. 140. Why did you go up to the Smith factory to make these Exhibits "B^1," "B^2," "B^3?"

Ans. To show the work that I used to do.

Cr.-int. 141. Are you able to identify those kilns now standing as the same as those in which cancellers were baked when you were in the employ of the concern?

Ans. I am not; if they are not the same they are a fac-simile.

Cr.-int. 142. Which kilns are fac-similes; where are they?

Ans. In the brick building running alongside of the reservoir.

Cr.-int. 143. Was every one of those kilns referred to in your last answer a fac-simile of the ones in which canceller spears were baked; if not, which ones can you identify as fac-similes?

Ans. I have reference to the one that the cancellers were baked in; I did not look at the other kilns.

Cr.-int. 144. Are you unable to distinguish that kiln from among the others so as to indicate which one it was?

Ans. I can go straight to the kiln which the cancellers were done in—I mean the exhibits here on the table.

Cr.-int. 145. Was the wire gauze with points running up an instrument in common use among workmen at the time you began to make check-canceller spears?

Ans. No, sir; I made it myself.

Cr.-int. 146. Do you mean that you invented it?

Ans. I mean I never saw one before for that use.

Cr.-int. 147. How long did you experiment before making the finish like that on Exhibit Canceller "A^2?"

Ans. Different spells for a week before I got it, but had no trouble after the information from Mr. Graves.

Cr.-int. 148. What was the occasion of your change in 1858 from the former method?

Ans. They brought some pen-racks that were of a dark color, with inkstand holder, and had me face them off bright on the raised part, and were returned to Mr. Angevine; when they came back to be put together the raised parts were of the same color as check-canceller points; I asked Mr. Angevine how he done them, and he said he done them with a light coat of oil and high heat in the bottom of the kiln. (Objected to as incompetent.) I asked him then if he couldn't do those canceller tops or spears; the first two I took up to him I oiled; afterwards he oiled them and done them himself.

439 Cr.-int. 149. It was the custom of Mr. Smith's concern then to finish cast-iron goods in other colors than black; am I right?

Ans. It was.

Cr.-int. 150. How long a time did it take you over the forge fire to produce Exhibit "Canceller A^2?"

Ans. About five minutes, thereabouts.

Cr.-int. 151. Did you use a common forge fire?

Ans. I used a common forge; it was a charcoal fire.

Cr.-int. 152. When was your attention first called to this matter of cancellers as made by you at J. O. Smith's, how long ago, I mean, since you left their employment?

Ans. I saw one of them—it might be two or three months ago—standing on Mr. Bradford's table close to his desk. I said to him, there is some of the old work I used to do before the war, and then, when I come to take it up and examine it, I says, this one isn't done as I used to make them. I used to have them represent steel color and straw color.

Cr.-int. 153. In how large quantities were goods made and baked in a kiln like "B^1," "B^2," "B^3" while you were in the employ of J. O. Smith & Son?

Ans. Not in large quantities; one gross, a half gross, a month, sometimes more, sometimes less.

Hearing adjourned until Monday, April 11th, 1881, at ten o'clock a. m.

NEW HAVEN, *April* 11, 1881—10 o'clock a. m.

Examination resumed. Parties present as before.

Cr.-int. 154. When did you last while in the employ of J. O. Smith & Son make goods like "Canceller A^2" by the process that you have described as practiced over a forge?

Ans. Between the year 1857 and the year 1861.

Cr.-int. 155. When did you cease making cancellers over the forge fire and begin to have them baked?

Ans. I began to have them baked in 1858. I may have made some after that on the forge to fill our special orders; I can't say certainly.

440 Cr.-int. 156. Where was that forge situated over which you first made the cancellers?

Ans. To the right of the stove in the building where the water-power was—the portable forge.

Cr.-int. 157. Did you use the same forge in japanning the Exhibits "A^1," "A^2," "A^3?"

Ans. I can't say it was.

Cr.-int. 158. Describe the brush which you testified in answer to Int. 21 you used in applying linseed oil to the cancellers made when in employ of Smith & Son.

Ans. Flattish brush.

Cr.-int. 159. How large was it?

Ans. It might have been an inch, perhaps.

Cr.-int. 160. Was it a common brush, such as is used in applying japan?

Ans. One I got from the japan department.

Cr.-int. 161. Did you get the oil from the japan department, too—I mean the oil you used when in the employ of Smith & Son—in making the cancellers?

Ans. No, sir; I got it from James Nolan at the first trial. I may have had oil from Shay afterwards.

Cr.-int. 162. What was James Nolan's connection with the concern?

Ans. He was their varnish-maker.

Cr.-int. 163. Was he their paint-mixer?

Ans. I don't know that they mixed paints.

Cr.-int. 164. Did Nolan have anything to do with the paints mixed by the concern; and, if so, what?

Ans. I know nothing about it; it was out of my line of business.

Cr.-int. 165. How many workmen, at the time you worked for J. O. Smith's concern in Middletown, did they employ?

Ans. I do not know—well, there may have been fifty; I can't state, for they were scattered all through the buildings.

Cr.-int. 166. Were there any other persons than those you have mentioned employed in the building where the cancellers were finished? If so, please give their names and residences?

Ans. I don't remember others. There was other workmen worked there, but I don't remember their names.

441 Cr.-int. 167. What's the difference between raw and boiled linseed oil?

Ans. One's boiled and the other's raw.

Cr.-int. 168. What's the difference in the appearance?

Ans. Boiled oil is darker and appears to have a heavier body.

Cr.-int. 169. Did you apply boiled linseed oil with a brush to the surface of check-cancellers like "Canceller A^2," or "A^3," and bake the same over the forge without further treatment, when you were in the employ of Smith & Son, in order to produce a surface like that on the exhibits referred to?

Ans. I did.

Cr.-int. 170. Do I understand that you used undiluted boiled linseed oil simply in this process at Smith's?

Ans. I supposed it to be linseed oil; I got it of James Nolan for that; I never made any analysis of it.

Redirect examination by JOHN S. BEACH, Esq., of counsel for defendant.

R. D. Int. 171. You say, in answers to cross-interrogatories 133 and 136, that you did not know what kilns Mr. Angevine used in baking these oiled check-cancellers; please explain more fully your answers to those interrogatories.

Ans. I did not know what kilns he baked all of them in, because I was not always there when he done them.

R. D. Int. 172. Were you present at any time when he did so bake them?

Ans. I was with the first lot until they were done.

R. D. Int. 173. You say, in answer to cross-interrogatory 170, that you made no analysis of the linseed oil you used; did you recognize the oil you did use as linseed oil?

Ans. I did.

R. D. Int. 174. What opportunities had you had enabling you to distinguish linseed oil from other oils?

Ans. The reason my father had always had it about his tannery, and we had it there at J. O. Smith's by casks, ten or a dozen at a time, casks that would hold two or three hundred gallons.

442 Redirect Int. 175. What was your father's business?

Ans. Tanning business, shoe-making, harness-making.

Redirect Int. 176. In the conducting of that business is use made of linseed oil?

Ans. To some extent in making stuffing for leather.

Recross-examination by Mr. LOOMIS:

Recross-int. 177. For what purposes was boiled linseed oil used in your father's tannery?

Ans. I didn't know that he used any boiled linseed oil.

Recross-int. 178. For what purposes was raw linseed oil used about your father's tannery?

Ans. In some of his stuffing made of currier's oil he used to mix in a little linseed oil.

Recross-int. 179. For what purposes was boiled linseed oil used by Smith & Son while you worked there besides the use you have referred to or made by you?

Ans. I can't say.

Recross-int. 180. For what other purposes had boiled linseed oil been used by you while in the employ of Smith & Co. than this you have described?

Ans. No other purposes.

(The complainant objects to the deposition of Wm. R. Sawyer on the ground that the name and residence of this witness is not stated in the answer or in any notice given by defendant to complainant.)

WILLIAM R. SAWYER.

Sworn and subscribed to this 11th day of April, 1881, before me.

JOHN B. MILLS,
Special Examiner.

443 EDWIN R. ANGEVINE, a witness produced by and on behalf of the defendant, having been duly cautioned and sworn, to interrogatories proposed by CHARLES E. MITCHELL, Esq., of counsel for the defendant, answered as follows:

Int. 1. What is your name, age, residence, and occupation?

Ans. Edwin R. Angevine; I'll be fifty the 28th day of April; residence, Middletown, Westfield Society; occupation, japanner.

Int. 2. How long have you worked at japanning and where?

Ans. The 7th of June will be 24 years. For James O. Smith & Son and for J. O. Smith Manufacturing Company at the present time, Middletown; Westfield Society, they call it.

Int. 3. Give the exact date when you went into the employ of J. O. Smith & Son.

Ans. I arrived on the 7th June—that will come on Friday—and I went to work on Saturday morning, 1857.

Int. 4. Do you know Wm. R. Sawyer, who has already testified in this case, and if yea, state whether or not he was at work for J. O. Smith & Sons when you went into their employ, as stated by you.

Ans. He was.

Int. 5. At what did he work at that time and thereafter while in the employ of said Smiths?

Ans. On stationers' hardware.

Int. 6. How long did he remain at work for J. O. Smith & Son, if you know?

Ans. Until he enlisted in the service in the year 1861; I couldn't say the day and date.

Int. 7. Did he work for them at all after that?

Ans. No, sir.

Int. 8. Did he work at stationers' hardware all the time after you arrived in 1857 until he went into the service in 1861?

Ans. He did.

Int. 9. Please specify a little more in detail the articles which Sawyer worked upon under the general name of stationers' hardware.

444 Ans. Well, at that time, there was a big assortment of different kinds of pen-racks, desk-weights, bill-files, and there was different articles that come into the shop from different parties that was done; they was always getting up something new.

Int. 10. Describe the bill-files to which you refer in your last answer.

Ans. I couldn't tell you the number of them or the names of them; some only had one wire and some had two, and some was called a harp bill-file, and then these. (Pointing to the check-cancellers exhibits.)

Int. 11. Do you remember whether the check-cancellers began to be made after your arrival at J. O. Smith & Son's, or whether they were already making them at that time?

Ans. I think they were made shortly after I came.

Int. 12. Do you mean they first made them shortly after you came?

Ans. Yes.

Int. 13. Do you know how these check-canceller heads were first finished by Mr. Sawyer?

Ans. I can't say that I saw him at first, but I see him afterwards. I see him do it and I done it afterwards.

Int. 14. How did he do it as you witnessed it?

Ans. He came in and got a camel's-hair brush from me about an inch square or an inch in length, put it in boiled oil, worked the brush out on the wire so that you would think that there was nothing in the brush at all, then he took and held the wire he had in here (pointing to the hole in the base of "Canceller A^2"), took this camel's-hair brush and did it all over with this oil, then put it in the kiln and baked it. (On the answer being read the witness says:) That's wrong; he baked it over the forge; he had nothing to do with the kiln. I understood your question to refer to myself when I answered it first.

Int. 15. When did you first finish the check-cancellers?

Ans. In the latter part of 1857.

Int. 16. In what condition were the check-cancellers' spears brought to you to be finished?

Ans. They was all finished to be oiled.

Int. 17. Polished or unpolished?

Ans. Polished.

445 Int. 18. From whom did they come?

Ans. From Mr. Wm. R. Sawyer.

Int. 19. What did you do with them after they came to you with polished surfaces from Mr. Sawyer?

Ans. I dusted them off and oiled them, and put them in the kiln.

Int. 20. What kind of a coat of oil did you apply.

Ans. A thin coat of oil.

Int. 21. How did you make it thin?

Ans. At times, when I found it too heavy, I put turpentine in and thinned it down a little—a very little.

Int. 22. Describe the method of applying it to the spears or canceller heads as you did it.

Ans. With a camel's-hair brush, the same as Mr. Sawyer did it.

Int. 23. You said, in speaking of the way Mr. Sawyer did it, that he "worked the brush out on the wire so that you would think there was nothing in the brush at all;" what was the object of that?

Ans. So as you could get a light straw color; that's the way that I saw him do it, and that's the way that I did it.

Int. 24. What wire was the brush "worked out on?"

Ans. A small wire as big as a good-sized pin, a trifle bigger around than a hair-pin, across the cup the oil was in.

Int. 25. What was done with the canceller spears after they were subjected to the thin coat of oil?

Ans. They was carried back to Mr. Sawyer after they were baked.

Int. 26. Describe the way they were baked before going back to Mr. Sawyer.

Ans. They was put on the bottom of the kiln, with no other work into it. We got it as hot as we possibly could, and set them on the bottom, and leave them in an hour; look at them; if they wasn't the right color leave them; when they got the right color took them out.

Int. 27. Why was there no other work in the kiln at the time the check-cancellers were baked?

Ans. Because tin work would melt down with it.

Int. 28. With what material were the kilns heated in which this work was done?

Ans. Coal—egg coal.

446 Int. 29. How was the bottom of the kiln or kilns made?

Ans. Well, from the fire to the plate, I should judge, would be about three inches, and there was two inches from that to the sheet-iron plate.

Int. 30. Do you mean that the coal fire was about three inches below the iron plate which formed the floor of the kiln?

Ans. There was a cast-iron plate over the fire and a sheet-iron plate two inches from that.

Int. 31. How did you know when the kiln was hot enough to put in the check-cancellers?

Ans. When I could see that it got red on the bottom.

Int. 32. How did the color and appearance of the canceller spears which you finished compare with Defendants' Exhibits "Cancellers B^2" and "B^3?"

Ans. It was the same.

Int. 33. You have stated that you first finished these cancellers with oil and heat in 1857; how long did you continue to do so upon Mr. Sawyer's work?

Ans. Up to the time that Mr. Sawyer left.

Int. 34. Mr. Sawyer states that "Cancellers B^2" and "B^3" were oiled and baked in kiln by you and that "Canceller B^1" was baked at the same time without oiling; state whether or not you agree with Mr. Sawyer as to that matter.

Ans. They were.

Int. 35. State whether or not they were oiled and baked in the same way as the canceller spears which were oiled and baked by you from and after 1857, as you have testified.

Ans. The same.

Int. 36. What has become of the kiln or kilns in which you baked the check-cancellers made by J. O. Smith & Son?

Ans. They were burned up and destroyed.

Int. 37. When was the fire and what was its extent?

Ans. I think it was in the year 1874; it was total—everything burned clean up, with the exception of the iron shop.

Int. 38. When you baked the spears did you put them on the cast-iron plate or the sheet-iron plate which was above the cast-iron plate?

Ans. Sheet-iron plate.

447 Int. 39. Which plate was it that was red when the kiln was hot enough for baking this class of work?

Ans. As soon as you could see the sheet-iron plate, as big as a ten-cent piece, red, then you could know that the cast-iron plate was red hot.

Int. 40. You said, in reply to interrogatory 27, that no other work was put into the kiln at the time the check-cancellers were baked, because the tin work would melt down with it; at about what heat would tin work melt down?

Ans. At 175° Fahr. we would shut off and the kiln might get 25° higher, and we never went higher than that for japanning.

Int. 41. Do you know at what heat the tin upon sheet-tin begins to flow?

Ans. In the neighborhood of 350° Fahr.

Int. 42. At what heat was the straw color produced upon the iron of which the check-cancellers were made?

Ans. I should judge between 450° Fahr. and 500° Fahr., somewhere in that neighborhood, in that part of the kiln.

Int. 43. Do you remember what kind of a tool was used by Sawyer to support the spear heads when he bronzed them over the forge?

Ans. It was one which resembled that—referring to Defendants' Exhibit "Sawyer's Holder." It might be a trifle larger or a trifle smaller, so far as I know.

(No cross-examination.)

EDWIN R. ANGEVINE.

Subscribed and sworn to this 11th day of April, 1881, before me.

JOHN B. MILLS,
Special Examiner.

And at the term of said court held at New Haven, in said district, on the 4th Tuesday of April, 1881, the parties, by their respective counsel, duly appeared and said cause was fully heard.

447½ And on the 2d day of September, 1881, the court filed its opinion in the words and figures following, viz:

448 Circuit Court of the United States for the District of Connecticut.

HIRAM TUCKER *v.* SARGENT & CO.

SHIPMAN, J.:

This is a bill in equity based upon the alleged infringement of reissued letters patent Nos. 2355 and 2356, dated September 11th, 1866, and granted to the Tucker Manufacturing Company as assignee of Hiram Tucker, and now owned by the plaintiff, one patent being for an improved process of bronzing or coloring iron, and the other being for the iron thus bronzed. The original patent was issued December 15th, 1863.

These reissued patents were the subject of litigation before Mr. Justice Clifford, in Tucker *v.* Tucker Manufacturing Company, reported in 10th Off. Gaz., 464, and before Judge Lowell in Tucker *v.* Burditt *et al.*, reported in 5th Fed. Rep., 808, and in Tucker *v.* Dana, decided January 21st, 1881, and not yet reported. They have hereto-
449 fore, to a certain extent, been the subject of discussion in this court. Judge Lowell, in Tucker *v.* Burditt, describes the patented process and construes the patent as follows: "The process consists of cleaning a piece of cast-iron of the desired pattern from the sand and scale which adhere to it when it comes from the mould, and then coating it with a very thin film of oil and subjecting it to a high degree of heat one or more times, whereby various colors may be produced upon the surface of the iron and rendered permanent, which before this invention were not produced in cast-iron, or, if approximated, were not permanent. A film of varnish containing oil may be used instead of oil, and may infringe the patent; and so, if the iron is first heated, and then varnished and heated again, the process may be infringed." With this general definition of the patented process the parties do not now find fault.

The patentee describes the process more at length in the specification of reissue No. 2355, and says: "Metals have heretofore
450 been lacquered or bronzed by the application of a solution of resin and metallic powders or salts, and dried by exposure to air or heat. Iron has been japanned by covering its surface with oily solutions of asphaltum and pigments and subsequent application of heat sufficient to produce hardness.

These are well known operations.

My invention consists in a process of covering iron with a very thin coating of oil, and then subjecting it to heat, the effect of which is to leave upon the iron a firm film, which is very durable, and gives the iron a highly ornamental appearance, like that of bronze.

In practice I proceed as follows:

The surface of the iron is cleansed from sand, scale, or other foreign matter, and where fine effects are desired the surface is best made smooth or polished. Under given conditions of heating and oiling the finer the polish the lighter is the bronze tint produced. In cases where ornamentation is obtained by relief the salient parts should be most highly polished or most smoothly surfaced, in order

451 that the colors produced upon them shall not be so deep as it is on those parts which are in the rear, so as to imitate thereby more nearly the effects of genuine bronze, in which the natural oxidation is apt to be worn somewhat away from its salient parts, and therefore lighter in color.

When the iron is thus prepared I cover it with a very thin coating of linseed oil, or any oil which is the equivalent therefor, for the purpose here specified (such a coating as I knd best attained by applying the oil with a brush, and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement), and then place it in an oven, where it is submitted to a degree of heat which may be measured by an intensity sufficient to change a brightened surface of clean, unoiled iron to a color varying from a light straw color to a deep blue, the lowest degree of heat producing the lighest colored changes and the lightest bronze and the highest degree of heat producing the darkest-colored changes and the darkest bronze. It is important that the coating of oil be made
452 extremely thin, as a coating of any material thickness will leave a rough and varied surface after the heat is applied. As the oiled iron becomes heated, the color obtained will be bronze, of an intensity corresponding to the degree of heat employed; but it should be observed that the heat may be made so intense and so long continued as to destroy the oil, in which case the iron will lose the bronze tint acquired and will assume the dark-blue shade.

The defendant is said to have infringed the two reissues by the manufacture and sale of cast-iron butts, samples of which were produced and marked Exhibits A D and D D. These butts are colored in this way: The sunken parts are first covered with a black japan, and this coat of blacking is baked in an oven at a temperature not exceeding 320 degrees Fahrenheit. This japanning of the sunken parts is immaterial. It is not really claimed to be a Tucker bronzing. The object probably is to make a marked contrast between the sunken and salient parts of the butt. All but the sunken
453 parts are then ground and subjected to a heat of 480 degrees Fahrenheit, which colors the iron a dark straw color. The ground parts of one of the exhibits are nearly or quite blue. A coat of copal varnish of substantial thickness is then put on and baked in a heat of not over 300 degrees Fahrenheit. This produces a material coating of oxidized varnish upon the surface of the iron, which can be scraped up by a rapidly-drawn knife-blade as a shavings rolls up before the knife of a plane. It was not claimed by the defendant that the varnish was not oxidized by the heat. No proof was offered by the plaintiff in regard to the oxidation of the iron during the second heating, and I do not think it of importance. The plaintiff relies upon the uncontradicted fact that by successive applications of heat the iron and varnish were oxidized, and if an iron surface oxidized by heat with a coating of varnish oxidized by heat necessarily make Tucker bronze then the defendant infringes the plaintiff's patents.

454 This precise question has not apparently been the subject of discussion either before Judge Clifford or Judge Lowell,

and therefore it becomes necessary to ascertain the exact extent of the invention by the aid of the evidence which was introduced in regard to novelty and which the defendant insisted proved that the Tucker process was practiced in its factory prior to 1859.

F. W. Brocksieper was in the employment of Peck & Walter, the Peck & Walter Manufacturing Company, and J. B. Sargent & Co., the predecessors of the defendant in New Britain, between 1849 and 1859 as a foreman in the ornamental department of their work, and is now a contractor in the defendants' factory in New Haven. He did the class of work hereafter described between 1856 and 1859, in New Britain, but the work of which I speak particularly was done after 1857 in a new kiln made under the superintendence of Mr. Gebhardt, the head painter of the establishment, for the purpose of furnishing a very high heat. Brocksieper treated hat-
455 hooks, coat-hooks, jamb-hooks, sash-fasteners, match-boxes, looking-glass frames, and cast-iron horses for saddlers' windows in the following way: "We had the castings cast with a facing, so as to come out of the sand very nearly entirely free of sand, then those castings rolled, drilled, and countersunk, the highest parts or the prominent parts of the ornaments brightened with sand-paper or emery-paper, brushed clean from dust, then sized and baked. In order to handle them easy, those hooks, we had them fastened on a block with a spring and sized them in quantities as they were ordered, let them stand long enough so that the size would not stick to the fingers, then we put them in pans, or on hooks, and put them in the kiln to bake." The size was a mixture of equal parts of turpentine, copal varnish, and linseed oil, and was applied in a very thin coat, put on with a stiff, fine brush as lightly as he could. The kiln was heated to 420 degrees Fahrenheit. Several batches of
456 hooks of from twelve dozen to twenty-four dozen each, between one hundred dozen and two hundred dozen sash-fasteners, about one hundred looking-glass frames, and horses in "considerable quantities" were made and sold. The match-boxes were probably made in larger quantities.

It is manifest that this style of ornamentation did not become a marked feature of the defendants' business. It was not caught up as an attractive style by their customers, though Brocksieper was much pleased with it and did what he could to press it upon the attention of his employees. While there is no doubt that the reproductions of this method of coloring, which were made by Mr. Ruff under the eye of the examiner, are Tucker bronze, I do not think that the articles which were made in 1857 were precisely of same character, for, if they had been, they would have received the prompt attention of the public.

457 The plaintiff says that they were not made by his process for two reasons: First. That there is no evidence that the iron was oxidized by the heat, which is an essential part of his process. All the testimony in regard to the manner of manufacture shows that the iron must have been heated so as to be oxydized. The kiln was sufficiently hot; the coating of size was sufficiently thin; that there was no oxidation rests in theory alone. The second reason is that the

coating was too thick to make genuine Tucker bronze, and the plaintiff's counsel quote the language of the specification to show the stress which the patentee placed upon the thinness of the oil coating. Upon this point I think the plaintiff is right. There was oxidation, but there was a coating of baked size over the oxidized iron, which was a different thing from the result produced by the plaintiff's process. The articles which were manufactured did not have the beauty of Tucker bronze, but presented the appearance of a varnished or painted article. If follows that bright cast-iron oxidized and covered with a coat of oxidized oil varnish or size may be, but is not necessarily, Tucker bronze.

458 Tucke- bronze is a new surface of the iron produced by the joint oxidation or by the successive oxidations of the iron and a film of oil or varnish thereon, by means of high heat, and is not a new coating of oxidized oil or varnish upon the iron. The oil must be applied in such a way that after oxidation there is no substantial covering of baked oil upon the surface of the iron. The surface of the iron is a bronzed surface, because the film of the oil is so thin and is so closely united with the pores of the iron as to be almost a part of it, and deos not form a substantial covering like a coat of varnish over the surface of the iron. In Tucker bronze which has been subjected to one heat the film of oil can with difficulty be scraped off with a knife. When the iron has had two or three successive applications of oil and has been heated two or three times the oil comes off by scraping, in the the form of little flakes or of powder.

Tucker's discovery was that bright cast-iron covered with a thin film of oil would take on, by the action of high heat, a new

459 surface resembling bronze. The defendant covers the oxidized surface of the iron with an oxidized coat of varnish. It does what Brocksieper did in 1857, except that it takes two steps instead of one to accomplish the result.

Let the bill be dismissed.

ELIHU G. LOOMIS AND
JAMES E. MAYNADIER,
For the Plaintiff.
CHARLES E. MITCHELL AND
JOHN S. BEACH,
For the Defendant.

459½ And on the 20th day of September, 1881, the following final decree was made and entered in said cause, viz:

460 At a stated term of the circuit court of the United States for the district of Connecticut held at the city of Hartford, in said district, on the third Tuesday of September, 1881.

HIRAM TUCKER
v.
SARGENT AND CO. } In Equity.

This cause having come on to be heard upon the bill of complaint herein, the answer, replication, and the proof taken and filed in said

cause, and having been argued by counsel for the respective parties, now, therefore, on consideration thereof, it is ordered, adjudged, and decreed, and the court doth hereby order, adjudge, and decree, as follows:

That the complainant's said bill of complaint be, and the same hereby is, dismissed, with costs to the defendant, taxed at the sum of —.

N. SHIPMAN,
District Judge.

460½ And on the 11th day of May, 1883, a bill of revivor was filed and writ of subpœna issued, of which writ service was accepted, which said bill and writ of subpœna are as follows, viz:

461 UNITED STATES OF AMERICA.

CONNECTICUT, *ss:*

To the judges of the circuit court of the United States for the district of Connecticut:

William H. Plummer, of Cambridge, in the county of Middlesex and Commonwealth of Massachusetts, and a citizen of said Massachusetts, brings this his bill against Sargent and Company, a corporation organized under the laws of the State of Connecticut, and located and doing business in the city of New Haven, in said State.

And thereupon your orator complains and says that Hiram Tucker, late of Boston, in the county of Suffolk and said Commonwealth, but now deceased, on or about the — day of ——, A. D. 1880, exhibited his original bill of complaint in this honorable court against said Sargent and Company, thereby stating and praying as set forth in said bill, being the same cause numbered 276 on the equity docket of said court, at the April term thereof, in the year one thousand eight hundred and eighty-one, to which reference is had as well as to all the files of court in said case, and your orator prays that the same may be taken as and for a part of this bill.

And your orator further showeth unto your honors that the said defendant, having been duly served with process for that pur-
462 pose, appeared and put in their answer to said bill, and thereafter other and further pleadings were had between the parties, as appears by the records in said case, and that the case came on to be heard on the — days of ——, A. D. 1881, and thereafter, on the twentieth day of September, A. D. 1881, in the above-entitled cause, it was ordered, adjudged, and decreed that the bill be dismissed; and your orator further showeth that the said Hiram Tucker lately, and on or about the twenty-first day of October, A. D. 1882, deceased intestate, and that your orator has obtained letters of administration of the goods, chattels, rights, and credits of the said Hiram Tucker, deceased, granted to him by and out of the proper court, and has thereby become, and now is, his legal personal representative.

And your orator further saith that the space of two years has not elapsed since the entry of said decree, that the said bill be dismissed,

and that he is desirous of taking an appeal to the Supreme Court of the United States to reverse the decree in the aforesaid suit.

And your orator further showeth that the said suit and proceedings have become abated by the death of the said Hiram Tucker, and your orator, as he is advised, entitled to have the said suit and proceedings revived against the said defendant-, Sargent & Co., by said appeal, and to have the said cause put in the same
463 plight and condition as the same was in previously to the death of said Hiram Tucker.

To the end, therefore, that the said defendant may answer the premises, and that the said suit and proceedings may be revived against said defendant, and that your orator may obtain an appeal to remove the said cause to the Supreme Court of the United States to reverse the decree in the aforesaid suit, and that the said suit and proceedings may stand revived and be in the same state and condition as the same were in at the time of the death of said Hiram Tucker, or that the defendant may show good cause to the contrary, and for such other and further relief in the premises as justice and equity and the circumstances of the case may require and to this honorable court shall seem meet: May it please your honors to grant unto your orator a writ of subpœna to revive, issuing out of and under the seal of this honorable court, to be directed to the said Sargent and Company, thereby commanding them at a certain day personally to be and appear before your honors in this honorable court, then and there to show cause if they can why the said suit and the proceedings therein had should not stand and be revived against them and be in the same plight and condition as the same were in at the time of the abatement thereof, and
464 an appeal to remove said cause to the Supreme Court of the United States to reverse the decree in the aforesaid suit should not be granted, and further to stand to and abide such other order and decree in the premises as shall to your honors seem meet.

WILLIAM H. PLUMMER,
Administrator Estate of Hiram Tucker.

LOOMIS & LANE,
Solicitors & of Counsel for Complainant.

UNITED STATES OF AMERICA,
District of Massachusetts, } ss:

BOSTON, *April 30th*, 1883.

Then personally appeared the above-named William H. Plummer and subscribed the foregoing bill and made oath that the statements therein made of his own knowledge are true, and that those made upon information and belief he believes to be true.

Before me—

[NOTARIAL SEAL.]

GEO. W. MORSE,
Notary Public.

465 [SEAL.] The President of the United States of America to the marshal of the district of Connecticut, sendeth Greeting:

You are hereby commanded to summon Sargent & Company, a corporation organized under the laws of the State of Connecticut, and located and doing business in the city of New Haven, in the State and district of Connecticut, to appear before the judges of the circuit court of the United States of America for the district of Connecticut, in the second circuit, in equity, on the 11th day of May, 1883, wheresoever the said court shall then be, to answer a bill of complaint, being a bill of revivor in the case of Hiram Tucker against said Sargent & Co., No. 276, pending in said court in equity, *in said court* by William H. Plummer, of Cambridge, in the county of Middlesex and Commonwealth of Massachusetts, who is the administrator of Hiram Tucker, now deceased, and then and there to answer the same and to do and abide by what said court may order and decree in the premises.

Make due service and return.

Witness the Hon. Morrison R. Waite, Chief Justice of the Supreme Court of the United States, at Hartford, this 11th day of May, A. D. 1883.

EDWIN E. MARVIN, *Clerk.*

NEW HAVEN, *May* 11, 1883.

Service of the above writ is hereby acknowledged.

JNO. S. BEACH,
Att'y for Sargent & Co.

466 United States Circuit Court, District of Connecticut. In Equity.

WILLIAM H. PLUMMER, Adm'r, *v.* SARGENT & COMPANY.

Upon reading the foregoing bill of revivor, the writ of subpœna issued thereon, and the acceptance of service endorsed upon the same, it is now, on motion of Messrs. Morse & Maynadier, solicitors for the complainant, ordered that the said suit be, and the same is hereby, revived.

Hartford, May 11, 1883.

N. SHIPMAN,
District Judge.

467 Circuit Court of the United States, District of Connecticut. In Equity.

WILLIAM H. PLUMMER, Adm'r of the Estate of Hiram Tucker, Complainant,
vs.
SARGENT & COMPANY.

In the above-entitled action it is hereby agreed that in the Supreme Court of the United States complainant's exhibits, marked

"Complainant's Exhibits Judd's Sash-fasteners, J. B. M., Special Examiner," also document marked "Exhibit Tucker Agreement, John C. Lane, Spec. Ex'r," may be considered out of the case and shall not be set up in argument or otherwise relied on by either party; that Complainant's Exhibit Sargent Ground Plan may be supplied by agreement at any time before this case comes on to be heard, or, if not, may be considered out of the case; that Defendants' Exhibit "Tucker Process Oil," accidentally destroyed, may be replaced by another bottle of linseed oil by Mr. Earle at any time before this case comes on to be heard, or, if not, may be considered out of the case; that the label Defendants' Exhibit Stirrups, J. B. M., Special Examiner, may be attached to a stirrup on Defend-
468 ants' Exhibit Art Casting No. 3, which shall be taken as one of the stirrups produced as testified; that a new label may be attached to the check-canceller now unmarked, and marked "Defendants' Exhibit Canceller A."

JNO. S. BEACH,
Of Counsel for Defendants.
ELIHU G. LOOMIS,
Of Counsel for Complainant.

469 I, Edwin E. Marvin, clerk of the circuit court of the United States for the district of Connecticut, do certify that the annexed papers are true copies of the original judgement record in the matter of William H. Plummer, adm'r, *vs.* Sargent & Co., recorded and on file in said court.

In testimony whereof I have set hereto my name officially and the seal of said court, at Hartford, in said district, this 11th day of September, A. D. 1883.

[Seal of Circuit Court, Connecticut.]

EDWIN E. MARVIN, *Clerk.*

Endorsed on cover: Connecticut C. C. U. S. No. 378. William H. Plummer, administrator of Hiram Tucker, deceased, appellant, *vs.* Sargent & Company. Filed 9th October, 1883.

120-442

ON COMPARISON OF ORIGINAL AND REISSUED PATENTS THE REISSUE FOR THE ARTICLE OF MANUFACTURE IS VOID—

1st. Because it makes infringers of dealers who buy to sell again—a large class who would not be infringers of the original patent. The reissues were applied for by the Tucker Manufacturing Company, who acquired title more than two years after date of the original patent.

(Record, p. 5.)

2d. Because it expands the claim so as to include not merely the ornamental surface which is the product of the process, but so as to include all articles of iron which have been to a greater or less extent ornamented by the process.

3d. Because it expands the claim so as to include that which is neither a machine, manufacture, art, or composition of matter, within the meaning of the statute authorizing the grant of letters patent.

The process reissue would be void under the construction claimed for it by the appellant, because the original patent distinguishes between a mere film of oil, which contributes to the production of the bronzed surface itself, and a protective coating of varnish dried or baked "over the bronzing;" whereas the reissue, under the construction now claimed for it, would abolish the distinction thus clearly set forth in the original specification.

Supreme Court of the United States.

OCTOBER TERM, 1886.

No. 121.

WILLIAM H. PLUMMER,

Administrator of Hiram Tucker, deceased,

vs.

SARGENT AND COMPANY.

APPELLANT'S BRIEF.

JAMES E. MAYNADIER,
ELIHU G. LOOMIS, } *for Appellant.*

BOSTON:
PRESS OF ROCKWELL AND CHURCHILL,
No. 39 ARCH STREET.
1886.

APPELLANT'S BRIEF.

STATEMENT OF THE CASE.

This is an appeal from the decree of the Circuit Court of the United States within and for the District of Connecticut, entered September 30, 1881, in the case of Hiram Tucker *vs.* Sargent & Co., that the bill be dismissed.

Record, pages 304–5–7.

The proceedings subsequent to the decree in this case, as they appear of record, are: —

May 13, 1883, bill of revivor filed by William H. Plummer, as he is administrator of the first complainant's estate, Hiram Tucker having deceased subsequently to the date of the decree, and subpœna issued

Record, pages 305–6–7.

May 11, 1883, service of said bill accepted, and order therein recorded that said suit be and herein is revived.

Record, page 307.

May 18, 1883, appeal to this court, and bond filed, with clerk's certificate; appeal allowed.

Record, pages 1–2–3–4.

May 18, 1883, citation issued on the appeal and service of same accepted.

Record, pages 1–4.

The nature of this case is stated, and the questions therein raised are succinctly presented in the opening paragraphs of the opinion of Mr. Justice Shipman therein, to which reference is had as follows: —

Record, pages 301–4.

Shipman, Judge.

"This is a Bill in Equity, based upon the alleged infringement of reissued letters patent Nos. 2355 and 2356, dated September 11, 1866, and granted to the Tucker Manufacturing Company, as assignee of Hiram Tucker, and now owned by the plaintiff; one patent being for an improved process of bronzing or coloring iron, and the other being for the iron thus bronzed. The original patent was issued December 15, 1863.

"These reissued patents were the subject of litigation before Mr. Justice Clifford, in Tucker *vs.* Tucker Manufacturing Company, reported in 10th Off. Gaz., 464, and before Judge Lowell, in Tucker *vs.* Burditt *et al.*, reported in 5th Fed. Rep., 808, and in Tucker *vs.* Dana, decided January 21, 1881, and not yet reported. They have, heretofore, to a certain extent, been the subject of discussion in this court.

"Judge Lowell, in Tucker *vs.* Burditt, describes the patented process, and construes the patent as follows: 'The process consists of cleaning a piece of cast iron of the desired pattern from the sand and scale which adhere to it when it comes from the mould, and then coating it with a very thin film of oil, and subjecting it to a high degree of heat, one or more times, whereby various colors may be produced upon the surface of the iron, and rendered permanent, which, before this invention, were not produced in cast iron, or, if approximated, were not permanent. A film of varnish, containing oil, may be used instead of oil, and may infringe the patent; and so, if the iron is first heated and then varnished and heated again the process may be infringed.' With this general definition of the patented process the parties do not now find fault.

"The patentee describes the process more at length in the specification of Reissue No. 2355, and says: 'Metals have heretofore been lacquered or bronzed by the application of a solution of resin and metallic powders or salts, and dried by exposure to air or

heat. Iron has been japanned by covering its surface with oily solutions, of asphaltum, and pigments, and subsequent application of heat sufficient to produce hardness. These are well-known operations. My invention consists in a process of covering iron with a very thin coating of oil, and then subjecting it to heat, the effect of which is to leave upon the iron a firm film, which is very durable, and gives the iron a highly ornamental appearance like that of bronze.

"'In practice I proceed as follows: —

"'The surface of the iron is cleansed from sand, scale, or other foreign matter, and where fine effects are desired the surface is best made smooth or polished. Under given conditions of heating and oiling, the finer the polish the lighter is the bronze tint produced. In cases where ornamentation is obtained by relief, the salient parts should be most highly polished, or most smoothly surfaced, in order that the colors produced upon them shall not be so deep as it is on those parts which are in the rear, so as to imitate thereby more nearly the effects of genuine bronze, in which the natural oxidation is apt to be worn somewhat away from its salient parts, and therefore lighter in color.

"'When the iron is thus prepared I cover it with a very thin coating of linseed-oil, or any oil which is the equivalent therefor, for the purpose here specified (such a coating as I find best obtained by applying the oil with a brush, and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement), and then place it in an oven, where it is submitted to a degree of heat which may be measured by an intensity sufficient to change a brightened surface of clean, unoiled iron to a color varying from a light straw color to a deep blue, the lowest degree of heat producing the lightest colored changes and the lightest bronze, and the highest degree of heat producing the darkest colored changes and the darkest bronze. It is important that the coating of oil be made extremely thin, as a coating of any material thickness will leave a rough and varied surface after the heat is applied. As the oiled iron becomes heated the color obtained will be bronze, of an intensity corresponding to the degree of heat employed; but it should be observed that the heat may be made so intense and so long continued as to destroy the oil, in which case the iron will loose the bronze tint acquired and will assume the dark-blue shade.'

part of it, and does not form a substantial covering like a coat of varnish over the surface of the iron. In Tucker bronze, which has been subjected to one heat, the film of oil can with difficulty be scraped off with a knife. When the iron has had two or three successive applications of oil, and has been heated two or three times, the oil comes off by scraping, in the form of little flakes or of powder.

Tucker's discovery was that bright cast-iron, covered with a thin film of oil, would take on, by the action of high heat, a new surface resembling bronze. The defendant covers the oxidized surface of the iron with an oxidized coat of varnish. It does what Brocksieper did in 1857, except that it takes two steps instead of one to accomplish the result.

In the above recited paragraphs the Court below sustains the validity of the patents, but erroneously limits their scope in one particular, to wit: by excluding from the Tucker patents a thick coating of oil or size, colored by heat, and combined with a surface of bright cast-iron oxidized by heat.

The Court below has construed the patents to limit the thickness of this coating of oil, size, or varnish, to a bodiless coat, extremely thin, because of the evidence in regard to the use prior to the date of the patent by the defendants' witnesses of a comparatively thick coating of oil, size, or varnish, on a bright surface of cast iron, and the Court finds that they oxidized both oil and iron by the action of heat at one operation.

The appellant alleges that the Court below was in error in finding that bright cast iron was oxidized beneath a coating of size, as thick as described by defendants' witnesses.

First, — Because the burden of proof being upon the defendants to show such oxidation they failed to offer any competent evidence thereof.

Second, — Because bright cast iron could not be oxidized under such a thick coating of size as defendant's witnesses have described.

In consequence of the above recited error, the appellant alleges that the Court below erred in limiting the patent to the bodiless film containing the two elements, oil oxidized by heat, and iron oxidized by heat, and in deciding the principal issue first above recited adversely to appellant.

ARGUMENT.

The main questions at issue in this case are : —
In the language of the Court below : —

Whether an iron surface oxidized by heat, with a coating of varnish oxidized by heat, necessarily make Tucker bronze.

A. The appellant submits that bright cast-iron, oxidized by heat, covered and combined with oil oxidized by heat, makes Tucker bronze, even though the oxidized oil be thick, provided only that the oxidized iron beneath contribute to the beauty of the resultant surface by shining through the semi-transparent oil.

B. That the burden of proof was upon the defendant to show by its evidence the existence of oxidized oil and oxidized iron, combined on the surface of bright cast-iron, by the action of heat on goods made prior to the date of this invention.

C. That unless such proof was made the issue as stated above should have been decided in the affirmative.

D. That no part of defendants' evidence, of prior use tends to show that the metal surface under a coating of size was in fact oxidized, except that part of its evidence which tended to prove that the metal, after it had been coated with size, was submitted to a degree of heat sufficient to oxidize the surface of clean unoiled iron ; whereas the appellant claims that the coating of oil or size described was too thick to allow the air to penetrate it, and effect oxidation of the bright iron beneath the coating of size.

E. That the burden of proof was on the defendant to show that a degree of heat sufficient to oxidize the surface of clean unoiled iron will oxidize the bright cast iron underneath such a coat of oil or size as defendant's witnesses say they applied before heating.

F. That the defendant did not attempt to show this.

G. That the evidence shows that the practise of the defendants, in the manufacture of the goods claimed as infringing the said patent, by first oxidizing the clean unoiled metal, and then coating with size and oxidizing again, tends to prove that oxidation of the bright iron cannot be produced by heat under such a coating as they applied, but must be produced by a separate operation.

H. That the only evidence before the Court in regard to oxidation of bright iron, under such a coating of size as defendants' witnesses say they applied, is that of the complainant in reply, which tends to prove that oxidation of the bright iron could not have occurred during the operation described by defendants' witnesses as practised by them prior to the date of said invention, because the covering of oil or size was too thick to allow the air to reach and oxidize the bright surface of the iron beneath the oil or size.

Did defendants prove oxidation of bright iron under a coating of oil, or "size," on goods made prior to the date of the patent?

In pursuing this inquiry it should be noted: —

First. All the testimony in this case is given in the light of the patent, and after the knowledge and use of Tucker bronze had become universal. The phraseology of the patent constantly occurs throughout the descriptions given by defendant's witnesses.

Second. That nearly all of the testimony came from the mouths of witnesses, either now or formerly in the employ of Sargent & Co., and naturally prejudiced and willing witnesses.

Third. That not a single piece of the goods which defendants' witnesses say they made and sold, prior to the date of this invention, in such immense quantities, has been produced in court; although iron hardware is durable in its character, and is applied to permanent uses. No testimony has been offered to account for its absence. An analogous effect is claimed by the appellant from coating of oil over heated cast iron in preventing its oxidation by covering it from the atmosphere.

Fourth. That the colors of the linseed oil, size, or varnish oxidized by heat over a bright iron surface, are very similar to the colors of the oxides of iron, and very easily mistaken for them by an unpracticed eye.

THE COATING.

All the goods which the witnesses described as made prior to the date of the invention were coated in substantially the same manner as to thickness of coat; the Brocksieper picture-frame and antique bronze articles with linseed oil or "a size" composed of equal parts of linseed oil, varnish, and spirits of turpentine, and "laid on thin with a brush."

English finish carriage-knobs, were coated with English brown japan, diluted with equal parts of spirits of turpentine. The check cancellers were coated with linseed oil.

The phrases used by defendants' witnesses describe merely such a thin coat as, from the stand-point of the painter or japanner, would be a thin coat. From the stand-point of the patents their coat is a thick one,—too thick to make Tucker bronze, because too thick to allow the formation of oxides under it at one operation of oiling and heating.

The defendants' principal witness, Mr. Brocksieper, describes the thickness of the coat on the Picture-Frame

Brocksieper introduced as an exhibit in this case as follows: —

I then brushed on a thin coating of linseed-oil.

Page 66.

Of this mixture I took a fine, stiff brush and laid a thin coat on the front of the frame.

Record, page 106.

Cross-Int. 108. *Answer.* With a fine, stiff brush. Put it on as light as I could with a brush to cover the whole surface.

As to English finish carriage-knobs, Purmont Bradford says: —

Int. 12. If any change was made in the manufacture of this article, after Mr. Sargent came to New Britain, will you please state when that change was made, and state in detail of what it consisted?

Ans. Soon after Mr. Sargent came there he wanted some English-finish knobs done equal to the English finish. He got some English brown varnish. He wished me to make some knobs for him, and I took some knobs, cleaned them, had them polished, gave *them a very thin coating of this brown varnish, thinned with turpentine,* and baked them in a Japan kiln, *took them out a straw-brown color* and those that got the most heat were the darkest; gave them another coat after they were cool, same as first, put them into the kiln again and baked them a second time; found they were still darker, and then the third time done the same as the first by coating them over with brown varnish; baked them the third time and got them black, or nearly so. That completed the knobs.

Record, p. 79.

Int. 15. How did the thickness of the aggregate of these three coatings of brown varnish, which you have described on the English finish carriage-knobs, compare with the thickness of the single coat on the knob japanned with common japan?

Ans. To the best of my judgment it is less than one-half the thickness.

Record, page 79.

As to "bronze antique" Brocksieper says:—

Ans. 10. I would put it (the casting) on to a block with a spring so that one could handle it easier, and take the block in the hand and brush the hook lightly over with this "size," as I described before. Then I set them one side on their block until they could be handled without sticking to my fingers, then I could take them off my blocks and put them in pans (and bake them).

Record, page 106.

Cross-Int. 217. In describing the process of finishing coat and hat hooks in antique bronze, you have testified that, after putting them on blocks and coating them with size, you allowed them to stand until they could be handled without sticking to your finger. How long did it take to dry them to this degree?

Ans. Couple of hours; I don't know exactly the time.

Record, page 124.

If there is one direction which the patentee endeavors to make emphatic throughout his patent and specification it is, LET THE OIL COATING BE MADE EXCEEDINGLY THIN, WHEN APPLIED TO A BRIGHT IRON SURFACE.

He says, in the specification, "My invention consists *in a process of covering iron with a very thin coating of oil;*" "to leave upon the iron a firm *film;*" again, "when the iron is thus prepared, I cover it *with a very thin coating* of linseed-oil, . . . *such a coating as I find best attained by applying the oil with a brush and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement;*" again, "*It is important that the coating of oil be made extremely thin, as a coating of any material thickness will leave a rough or varied surface after the heat is applied;*" again, I recommend for the second and succeed-

ing oilings the use of a *dry hog-hair brush to take off the surplus oil;* again, "linseed-oil . . . preferred . . . because *of* . . . its capacity of giving a good, uniform, smooth film *when spread thinly upon the iron, as before described.*" [See specifications, Reissues 2,355 and 2,356, Record, pp. 54 to 59.]

The testimony of Mr. Tucker is very clear that a coat as thin as is attained by rubbing off the oil, or its equivalent, thoroughly from the polished surface of the iron, is essential to the successful practice of his invention when the oil is applied to a bright iron surface, and when this oil-film and the bright iron are oxidized at one operation; but if this "thin" coating contain a boiled or partially oxidized linseed-oil constituent, it will bake into a colored surface of thin japan, which, to inexperienced eyes, would somewhat resemble Tucker bronze. [See Tucker testimony, Record, pp. 30 and 31, Cross-Int. 55, p. 40.]

Cross-Q. 55. In your reply to the fifth interrogatory, I find the statement, in substance, that such a thin coating as those familiar with japanning ordinarily describe as thin coats, would be very many times thicker than that described in the patent. How many times do you mean by the phrase "very many times?"

Ans. Well, it would be a matter of estimate or guess. I should say from five to ten times at least; probably much more than that.

Judge Lowell's definition of a Tucker bronze surface is in point.

See Tucker *v.* Dana.

"The Tucker bronze [as] claimed in reissue No. 2,356 [is] iron varnished, or oiled and heated, either in one operation or more, in such manner that a color shall be imparted to the iron itself by heat, and also to the oil or varnish. If the iron is first colored and then merely varnished, or if the *coating of varnish alone is colored*, the invention has not been practiced so far as the present case is concerned."

But no one of the defendants' witnesses describes a surface, either for antique bronze or English finish carriage-knobs, prepared by *rubbing off* the oil or size from the surface of the iron.

It is natural that men now familiar with the process of making Tucker bronze should readily confound it with this old japanning process, as they look back upon it through an interval of twenty-five years, in which they have themselves been engaged in other branches of labor. Mr. Sargent evidently did when he had the interview with Mr. Tucker.

See Tucker's testimony Record, p. 34.

Q. 7. Have you had any communication with J. B. Sargent, of New Haven, who has testified in this suit, in regard to your invention described in the Letters-Patent now in suit? and, if so, what?

A. I have had. I saw Mr. Sargent at his factory in New Haven the last of September or the first of October of the year 1876, soon after the decision of Judge Clifford in my suit against the Tucker Manufacturing Company for their infringement of my bronze. My business with him at that time was to effect a settlement with him for his past infringement of my bronzing patent. Mr. Sargent at that time said that he had not infringed my patent, for the reason that his work or bronzing was done by the old japanning process, which was a matter of common knowledge among everybody familiar with the patent; and when I explained to him the nature of my invention, and explained to him the grounds on which the decision of Judge Clifford was based, he *denied that the process he used resulted in any oxidation of the iron, but was simply a thin coating of japan over a bright surface.* The result of this interview was Mr. Sargent's denial of infringement, and my affirmation that he did infringe.

Q. 8. Whether or not Mr. Sargent said that he had made goods that were like Tucker bronze previous to the date of your invention, or claimed to have anticipated in any way your process patent?

A. Mr. Sargent distinctly claimed at that interview that my process differed in no essential particular from the old and well-known japanning process, and the only way that I had attained notoriety and success was by doing the work nicer—I mean by

"the work" the japanning — than was practised by the trade before the date of my patent. He did not intimate in the slightest degree that himself, or any one in his employ, had ever done a similar finish on iron which differed from the old japan process."

Brocksieper's description of the process used by him shows conclusively that a, comparatively speaking, thick coat of size was used, — a "coat thick enough to stick to your fingers, which has to be dried before it can be put into the oven to bake." This could not possibly come within the definition of the coat given in the patent.

v. Brocksieper, Int. 15, Record, p. 170.
v. Sargent, Int. 63, p. 231.
Compare Tucker, Ints. 5 and 55. Record pp. 31, 41.

No one of defendants' witnesses specifies that oil was "rubbed off" during the process described by them.

The appellant does not deny that, if a man was familiar with the patents, he *could possibly*, by taking a new, dry brush, and touching it with an almost infinitesimal quantity of the "size," composed one-third of linseed oil, one-third of varnish, one-third of spirits of turpentine, manage to put on a film as thin as Mr. Earle did by rubbing off, and as thin as the patent requires when iron and oil are oxidized together at one operation; but a soaked, oily brush, taken from the pot of japan and oil, is not the appropriate implement for such work, and not one which would be used or described by any workman who really knew how to practise the Tucker process. No witness says that they used a "dry brush" even to *apply* the oil.

Again, it is evident that when the oily mixture is diluted with turpentine, naphtha, or any equivalent volatile liquid, and this dilution is carried so far that the oily constituent of the liquid is present in comparatively small quantities, this dilution furnishes the mechanical equivalent for rubbing off

in attaining the film of required thinness, and Tucker bronze can be made in this way as well as by rubbing off the oil. (See Tucker, Record p. 46, Int. 5.)

But the evidence is that defendants' witnesses diluted their oil and varnish with turpentine. Did they not obtain by this dilution the requisite thin coat? No, for they did not *sufficiently* dilute the mixture which they used to render such dilution the mechanical equivalent to rubbing off for the purposes of obtaining a thin coat upon the unoxidized surface of the iron, which is requisite when the iron and oil are oxidized together at one operation.

Mr. Tucker testifies that dilution could *not* be attained by diluting the mixture with one part of turpentine to two of oil and varnish, like the size as described by Mr. Brocksieper, though that was the ordinary measure of dilution for common japan work.

Hiram Tucker, Record, p. 39.

Cross-Q. 44. Then you cannot regard the fact that Mr. Ruff fails to refer to any dilutant as in any way material, can you?

A. I think so, in connection with his operation in regard to that exhibit. It is very material, as it is the only office of spirits of turpentine, when used with oil or varnish, to enable the user to obtain a thin coating with less trouble than he would without the spirits or any other dilutant; and if Mr. Ruff had tesified that he had diluted his oil with three or four parts spirits of turpentine, more or less, to one of oil, he would have got on a very much thinner coat by the process he describes as using than he did.

Ibid., Record p. 48.

Q. 10. Please give us as good an idea as you can as to the relative fluidity of the various japanning fluids, and the dips used in practising the Tucker process.

A. In practising the Tucker process, the fluids used are very thin, like water almost; whereas, in the japanning process, they are used very much thicker. I would say, however, in regard to the Tucker bronze, or the process of making the Tucker bronze by dip-

"the work" the japanning — than was practised by the trade before the date of my patent. He did not intimate in the slightest degree that himself, or any one in his employ, had ever done a similar finish on iron which differed from the old japan process."

Brocksieper's description of the process used by him shows conclusively that a, comparatively speaking, thick coat of size was used, — a "coat thick enough to stick to your fingers, which has to be dried before it can be put into the oven to bake." This could not possibly come within the definition of the coat given in the patent.

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Cross-Q. 44. Then you cannot regard the fact that Mr. Ruff fails to refer to any dilutant as in any way material, can you?

A. I think so, in connection with his operation in regard to that exhibit. It is very material, as it is the only office of spirits of turpentine, when used with oil or varnish, to enable the user to obtain a thin coating with less trouble than he would without the spirits or any other dilutant; and if Mr. Ruff had tesified that he had diluted his oil with three or four parts spirits of turpentine, more or less, to one of oil, he would have got on a very much thinner coat by the process he describes as using than he did.

Ibid., Record p. 48.

Q. 10. Please give us as good an idea as you can as to the relative fluidity of the various japanning fluids, and the dips used in practising the Tucker process.

A. In practising the Tucker process, the fluids used are very thin, like water almost; whereas, in the japanning process, they are used very much thicker. I would say, however, in regard to the Tucker bronze, or the process of making the Tucker bronze by dip-

ping, that where benzine is used as a dilutant, owing to its rapid evaporation, the dip sometimes gets thicker than it ought to be; the result then will be simply a japan coating, as the material is so thick as not to admit of the bright iron underneath being oxidized.

The testimony of Mr. Tucker is full and conclusive.

Record, pp. 29 to 34, inclusive.

EXAMINATION OF HIRAM TUCKER.

Question 1. You are the complainant in this case, and have already been examined therein?

Answer 1. I am. I have.

Q. 2. In what does your experience in regard to the use of oil and varnishes generally consist, and what has been your experience in the process of manufacturing Tucker bronze?

A. I have been familiar with the use of varnishes and drying oils for the past forty years. I have been familiar with the Tucker bronze process ever since its first discovery by me, and have been a manufacturer of the same for many years, since the date of the patent.

. . . . . .

Q. 4. Have you examined the testimony given by the several witnesses for the respondent in this case?

A. I have; very carefully.

Q. 5. Mr. John Ruff, and Mr. Brocksieper, and Mr. Purmont Bradford, and Mr. Joseph B. Sargent, and others have described a process by which they claim that Mr. Brocksieper and others have finished certain articles in imitation of bronze. Please compare the process thus described by them with that described in your patent, and state whether they are substantially the same, and give your reasons for your opinion. Please take the processes in the order in which they were described, beginning with the watch-stand described by Mr. John Ruff as finished by Brocksieper in his presence.

A. The process which Mr. John Ruff describes as being practised in his presence by Mr. Brocksieper does not, in my opinion, describe a process for making Tucker bronze; for the reason that one essential element described in the patent is left out of the oper-

ation. Mr. Ruff says that he obtained a casting of a watch-stand, and that after receiving said casting from the foundry he brushed it with a wire broom-brush, which is the ordinary implement used in all iron foundries for the purpose of removing the loose sand from an ordinary iron casting, and in no case is now used for the purpose of removing scale. He says that, after brushing the casting with this iron broom-brush, Mr. Brocksieper brought in a cup some linseed-oil without admixture of spirits of turpentine or any other dilutant, and with an ordinary brush applied a very thin coat, and afterwards held the article so treated over a forge-fire until he obtained, as he expresses it, the desired color. No matter what other way this casting was treated; if the scale had not been removed as described in the patent the result of such treatment would not have been Tucker bronze. I will say further, in regard to this piece of work, that if Mr. Brocksieper *had* removed the scale from this casting in question there would be no evidence that the product he obtained by such treatment was Tucker bronze. The coating of oil which he has described, as I should understand it from his description, is simply such a thin coating as those familiar with japanning ordinarily describe as thin coats, and would be very many times thicker than that described in the patent; and the fact that he might get a color from holding a piece of iron over a forge-fire so treated would be no evidence whatever that a surface was obtained consisting of oxidized oil and oxidized iron, which constitutes the novelty of this bronze invention in question.

Mr. Ruff also testifies that after witnessing the experiment of Mr. Brocksieper he did a cast-iron sewing-bird substantially in the same way in which he had seen Mr. Brocksieper do the watch-stand, with the addition of chasing the work, which wasn't a process for removing scale at all. What I have said about the Brocksieper process on the watch-stand will apply fully to this sewing-bird; neither of them are such descriptions as would enable a workman skilled in the art of japanning to produce Tucker bronze. Mr. Brocksieper's subsequent descriptions vary from the original process as described by Mr. Ruff and himself in the fact that he removed the scale as well as the sand from the coat and hat hooks, which I will take for samples and illustration. He also added copal varnish and spirits of turpentine to the oil for the purpose of coating these coat and hat hooks, jamb hooks, etc. From his description of what he

did with this composition it appears to me to be an ordinary thin coat or coating, but many times thicker than that described in the patented process, and such a coating as in my opinion would prevent the iron from oxidizing the surface underneath, unless the coating (which would be very apt to occur) should crawl up into small bunches and leave part of the surface exposed to the action of the heat, in which case the surface would be of no commercial value whatever. But from the fact that Mr. Brocksieper testified that these coat and hat hooks and other articles were left to partially dry so that they could be handled, as he expressed it, I should presume that the crawling effect might be obviated, which would leave upon the surface of the iron a *colored* surface, which to inexperienced eyes would appear very like Tucker bronze, but would really be a surface the same in character as a very thin coating of boiled oil japan would be over a surface of bright iron after being submitted to heat, and a color and surface which was universally known and practised by all japanners of skill and experience long before the date of and after my invention, of what is called Tucker bronze. I understand Mr. J. B. Sargent's testimony to be substantially the same as that of Mr. Brocksieper and Mr. Ruff, and as intended to corroborate their testimony as to prior use of this said invention. Mr. Brocksieper has testified at considerable length in regard to the way he first became acquainted with the process for producing the so-called Tucker bronze. He says before he came to this country he had seen practised the same thing substantially in the process for tempering screws and shovels. The description of this process of tempering which Mr. Brocksieper became familiar with, the knowledge of which, as he says, enabled him to make what is called Tucker bronze, with such facility, is very accurately described by him.

It is a process that I have been familiar with, and that all workers of metal of any experience, I believe, are familiar with, and in fact is a very old art, it is presumed many hundreds of years. He says that after certain screws were put into a perforated box a quantity of rapeseed-oil was poured in, and the box held over a forge-fire, or a proper fire, until the proper color and effect was produced. The effect of such treatment as this upon steel is simply to affect its temper, and incidentally to give the skin of the steel or iron a darker color than it otherwise would have. This rapeseed-oil mentioned by him is not a drying oil, and in no sense the equivalent

of linseed-oil for the purpose of making Tucker bronze, and is simply the equivalent of lard or sperm oil, and used for lubricating purposes, or for the purposes of tempering as described. A person situated as Mr. Brocksieper was when he first came to this country, or first went to work for the Peck & Walter Company, and having his attention called to a piece of iron-work, as it was, by Mr. Ruff, and not being acquainted with the art of japanning or its kindred arts, it would be the most natural thing in the world for him to take linseed-oil, if more convenient to his hand, and go through the same operation that he had seen practised abroad. Now, to show that Mr. Brocksieper hasn't a correct idea, even at this late day, of what constitutes the new surface produced by the process described in this bronze patent in suit, I call attention to that part of his testimony where he says (without attempting to quote his exact language) he considers this Tucker bronze to be the result of the tempering process practised and well known by workers in metal, and the same as that which he describes as seeing abroad, which is the same thing as that universally used for tempering. Now, as a matter of fact, those processes described by Mr. Brocksieper do not produce a surface at all like Tucker bronze in character, for the reason that this rapeseed or lard or sperm oil, used as he has described the rapeseed-oil was used, — and I use them all as being the same in character, — does not change in character under the action of heat in such a way as to leave the hard, resinous substance which results from the use of linseed-oil, and which is one of the constituent elements of the combination to make the new surface in question, but simply leaves a greasy surface that can be rubbed off by waste or paper, or washed off by soap and water, as a greasy plate should be washed. Mr. Brocksieper has testified to a process he used in producing a color on Defendants' Exhibit, Brocksieper Picture-Frame.

If I remember rightly, he says he first coated this with a coating of size, made from varnish, oil, and spirits of turpentine; which is a very good composition for the purpose of sizing, if allowed to remain a sufficient length of time to become homogeneous, — otherwise, the composition would act badly, — but heavier in body than the untreated linseed-oil would be; that he did this picture-frame over with the solution, putting on, as he expresses it, equal parts, after rubbing the prominent points of the frame with sand-paper, and brushing the rest part of the frame. (I will state here what I omitted

to state before, that the ingredients from which the size was made were composed of equal parts of linseed-oil, copal-varnish, and spirits of turpentine.) Now, provided Mr. Brocksieper is not mistaken in the slightest degree as to the process he practised on this frame, there is no evidence that he produced Tucker bronze, for the reason that the only part of this frame from which the scale was removed presents the appearance of copper; and again, although this frame appears to be colored, that is no evidence that there was a sufficient amount of heat from the forge-fire, or that a sufficient amount of heat from a forge-fire got to the surface of the iron which was cleaned by sand-paper, to raise an oxide in conjunction with the oxidized oil. Now, to my mind, one of two things is true in regard to the process practised by Mr. Brocksieper on this frame in question; he either did not apply sufficient heat to the size he placed upon this frame by holding it over the forge-fire to bring it to the ordinary color produced from practising the Tucker patented process (because it does not have the appearance of any Tucker bronze that I ever saw in my life), or he has rubbed on a thin coating of paint, composed of pigment and oil, — most likely umber, if I am correct, — then drying that over the forge-fire, or hardening it; afterwards touching it with bronze powder on the prominent points, as he has described.

The character of the copper appearance on the prominent points of this frame I must say is a mystery to me, in view of the testimony given by Mr. Brocksieper. If I was asked to give my judgment as an expert in matters of this kind as to how this coating or color on this frame was produced, I should say, after the casting came from the sand it was brushed and sand-papered as Mr. Brocksieper has described it; that it was then submitted to a battery process, and a blush of copper deposited on the bright portions, and naturally to a very slight extent on the other portions of the frame; that afterward this very thin pigment was rubbed on very thinly over the whole surface, and then the prominent, salient points rubbed with a rag to remove the pigment from the bright copper points. This process which I have described is old and well known, not only practised on iron, but for many years on spelter for chandelier work; and by following the description as I have given it just such appearing work as this would be the result; and for those reasons, and from the long time which has elapsed since Mr. Brocksieper performed his operations on this frame, I think he has cer-

tainly forgotten just how he did it. Tucker bronze does not change in color from the lapse of time unless exposed to the action of flies and the weather. From my observation of work that was done as far back as the date of the patent there isn't the slightest change apparent to the eye in the color and characteristics of its surface, and I propose, as the complainant in this case, to submit exhibits, with proof of their being done twenty years ago.

I have not scrutinized Mr. Purmont Bradford's testimony with the care I have devoted to Brocksieper's, Ruff's, and Sargent's, for the reason that his operations could not be considered as anticipating the patent, if he had not made the slightest mistake in the description of what he did, as the result was a common japan surface. I should not consider it at all sure, however, if he had omitted the last coating, which made practical japan, that he had done anything that would anticipate my bronze invention, as there is no satisfactory evidence in his description to show that he produced a surface of oxidized iron and oil combined.

Q. 6. Mr. Sawyer and Mr. Angevine have described the processes by which they claim to have finished certain check-canceller spears in imitation of bronze. Have you examined their testimony, and will you please compare the processes described by them with that described in your patent? State whether they are substantially the same, and give your reasons for your opinion.

A. I have examined the testimony of the witnesses referred to with a great deal of care, and I do not find such a description given by them as would enable the person skilled in the art of japanning to make the patented bronze. My reason is, first, that the description in regard to applying the oil with a brush and paper does not describe, within a degree of accuracy, the thickness or thinness of the coat of oil. The witness used the word "very thin," but that is a comparative term, and what would be an extremely thin coating in ordinary phrase, as applied to japanning, would mean a coating many times too thick to produce merchantable Tucker bronze. There is a portion of the testimony of Mr. Angevine, in regard to one process used on these spear-heads, which I am not able to reconcile in a way to appear reasonable to my mind. He says, without quoting his exact language, that after these spear-heads were polished and oiled he placed them on a thin iron plate, the spear-heads standing on their base, about two inches from the

iron plate, which was about an inch and a half thick, more or less, and which was placed directly over the fire which heated the kiln. I am a little too fast in my description. He says that this thin sheet-iron plate was placed over the thick iron plate which covered the fire, and when that thin sheet-iron plate became red-hot, or a portion of it as big as a ten-cent piece became red-hot, that then the spear-heads, oiled as he has described them, were placed on this thin sheet-iron so heated, and allowed to remain about an hour, and were then finished. Now this witness has certainly made a mistake in this description, for the reason that small pieces of iron, like the spear-heads in question, placed in such a heat as they *must* have received under such circumstances, would, in a very few moments, have attained the heat of the red-hot plate on which they were placed, and the inevitable consequence of such heating would be to utterly destroy any oil coating which might have been placed thereon. There is not the slightest evidence that these spear-heads, which were oiled and colored over the forge, had on their surface, when finished, any thing more than a thin coating of linseed-oil which had been colored by heat.

THE RESULTS OF THE PROCESS DO NOT SHOW OXIDATION OF THE BRIGHT SURFACE OF THE UNOILED IRON.

The Brocksieper picture-frame is the only exhibit claimed to have been made prior to the date of Tucker's invention. The bronze antique articles, and the English-finish carriage-knobs, and the check-cancellers were made by the same process, so far as thickness of coat is concerned, and exposed to the same degree of heat.

The burden of proof is on the appellee to show the existence of oxidized oil and oxidized iron combined on the surface of this exhibit, and of the other bronze antique goods claimed to have been made by them prior to the date of this invention. That they have failed to do so is evident from inspection of the Brocksieper picture-frame, and comparison with the other exhibits in this case, admitted to be Tucker bronze.

This exhibit is clearly different in color, appearance, and finish of surface from the other articles made by defendants' witnesses to represent "antique bronze" for the purposes of this case, and these are admitted to be good Tucker bronze.

It differs in color, appearance, and finish of surface from the Tucker Exhibits "A," "D," and "DD," made by defendants, and also from complainant's Exhibit F, — a piece of iron pipe made by him to illustrate the process patent.

"Bronze Powder" is not an appropriate decoration of the prominent points of an article of Tucker bronze. The prominent points of a picture-frame ornamented with Tucker bronze "being most smoothly surfaced" will show best the bronze color, and this is far more brilliant than the color produced by bronze powder adhering to a coat of size. Such a decoration as bronze-powder would be natural for a piece of japanned goods, which are often thus ornamented.

The objection that the dullness of the surface of the Brocksieper picture-frame may have been caused by age is answered by comparison with Tucker's exhibits, Lamps Nos. 1 and 2, which have endured the comparatively hard usage of domestic wear for twelve or fifteen years, but show no loss of lustre or beauty.

HIRAM TUCKER, *recalled*.

Question 1. If you have procured any specimens of Tucker bronze, showing the effect of time and of wear, please produce the same.

Answer. I have. I hereby produce one lamp complete, and part of another; these lamps have been in use from fourteen to fifteen years. The difference in color of these two lamps is owing partly to the difference in character of oil used for the purpose of producing the bronze, the amount of heat they were submitted to, and the difference of the smoothness of surfaces. The grayish appearance of the ground-work on the incomplete lamp, which represents the acorn pattern, as we call it, is owing to a very thin

pigment, composed of flake-white, verdigris-green, and linseed-oil, which, after being applied very thinly with a brush, was rubbed off with a rag or tissue-paper, and is intended to represent the oxide that appears on the ground-work of real bronze which are in the rear of salient surfaces.

Q. 2. By whom were these Exhibits, Tucker Lamp No. 1 and Tucker Lamp No. 2, made? and when and where have they been since they were made? and to what wear have they been subjected?

(Complainant puts in evidence: complainant's Exhibit, Tucker Lamp No. 1. J. B. M., Special Examiner; and complainant's Exhibit, Tucker Lamp No. 2. J. B. M., Special Examiner.)

A. These lamps were made by the Tucker Manufacturing Company, while I was superintendent, done under my supervision; and Lamp No. 1 was given by me as a present to my brother Edward O. Tucker, and to my knowledge has been used by him as a kerosene-oil lamp, certainly as many as fourteen years. Lamp No. 2 was given as a present to Mrs. Mary H. Green, my sister-in-law, and has been in use as a kerosene-lamp for about the same time as Lamp No. 1 has been used by my brother.

Record, p. 43.

Where is there any proof that any one before Tucker removed the original scale and put on a film of oil of such extreme thinness as not to prevent the coloring of the iron by heat, or in any other way removed the original scale and replaced it by a colored surface due to heat, and utilized this colored surface by means of a baked resinous film.

An opaque coat of Japan is old. A nearly transparent coat of Japan is also old. These coats were applied over the original scale, and also over bright iron, so removing this original scale and replacing it by the lustrous beautiful colors due to heat is also old on steel. But the only way known of utilizing these colors before Tucker's invention and discovery was either to leave the colored surface bare, or to cover it with a lacquer or varnish. Both these ways were of very limited utility and wholly worthless on cast-iron.

Finally:—It is reasonable to believe the testimony of the defendants' witnesses, provided that we interpret it as describing the old process of Japanning with thin coats with which they were necessarily familiar, and which produced goods which were familiar to the trade and old; to believe that the witnesses, when they saw Tucker Bronze, and found how easily it was made, were easily induced to confound the new process with the old and to testify that the Tucker Bronze Exhibits made by them for the purposes of this case were like the Bronze Antique which they made before the date of the patent.

It is not credible that true Tucker Bronze in the hands of Sargent & Co., in 1857, would not have been widely introduced to the trade and the public, so that Tucker could never have obtained his patents.

It is credible that these witnesses, desirous of assisting their employer, and willing to kill the patent, should confound the old Japanning Process with the new Tucker Bronzing Process.

THE DEFENDANTS INFRINGE THE TUCKER PATENTS IN SUIT.

Although the process described by the defendants is practiced in four steps, rather than three, by a division of the process of oxidation into two steps, viz., oxidation of the iron, before oiling, at a high heat, and a subsequent oxidation of the oil coating, the defendants' process is substantially the same as that described by the complainant's patents, because it produces results substantially the same. We may admit that the desired effect on the oil constituent of the resultant surface may be produced at a less heat than is required when the oil and iron surface are oxidized conjointly; and also that, in such case, the union of the oil and oxide, to make the patented product, may take place when the surface of the iron is covered more thickly with oil than in case the process is practiced in strict accordance with the terms of the patent. When oil and iron are to be oxidized jointly at one operation the heat required must be such as is necessary for the oxidation of the element requiring the longest exposure to heat and the highest temperature, namely, the iron, and this heating must of necessity be sufficient for the other element of the surface, which would not require so high a heat if done separately. The less is included in the greater but when the two elements are oxidized separately each receives a sufficient amount of heat to oxidize it, and so, after the metal has once been heated to the degree specified in the complainant's patent to oxidize and color the iron, a less degree of heat may suffice to oxidize the oil, and blend it thoroughly with the previously-formed oxide of iron.

Complainant's Exhibits "A," "D," and "D D" show plainly, on comparison with Defendants' Exhibit "Sargent & Co.'s Process No. 6," which was permitted to dry in the air after varnishing, that they have been subjected to a degree of heat which has not merely dried, but essentially modified the character and appearance of the varnish coating. They have been subjected to a baking heat, which has colored and solidified and oxidized the varnish coating, and firmly united it with the oxidized iron.

Each act directed to be done in the plaintiff's patent is found in the defendants' process, viz., preparation of the iron, oxidation of the iron by a high heat, coating the iron with a thin coating of an

oily varnish equivalent to linseed-oil—the thinner the better—and oxidation of the oil upon the iron by a heat high enough not only to harden but to blend the oxidized oil and iron into a new surface.

The results of the two processes are the same (the goods so finished sell in the market as iron ornamented in imitation of bronze) and differ from any other previously-known finish, substantially as Tucker bronze does. The conclusion is irresistible that the two processes are substantially the same.

The only difference between Tucker's process and Sargent's process is not in the things done to the iron, or in the relation which these things bear to each other or to the entire process or to the result, but is merely in the order of their doing.

In the patented process the oxidation of the iron and of the oil and the blending of the two together are performed by one heating; in the defendants' process the iron is first oxidized and other operations afterwards performed upon it by separate heating. The difference is one of form and not of substance, involving no change of principle. The object is the same, viz., to coat the iron with a film compounded of oxidized iron and oxidized oil, and the modes of obtaining it are substantially the same.

Mowry *v.* Whitney, 14 Wallace, 647.
Curtis on Patents, § 320.
Wheeler *v.* Clipper, M. & R. Co., 6 Fish. P. C., 24.
Cannington *v.* Nutall, Law Reports, 5 H. of L., 220.
Jenkins *v.* Walker, 5 Fisher P. C., 352.
Goodyear *v.* Railroad, 2 Wall., Jr., 359.

Even if we admit that in the process practiced by the defendants a thicker coating of oil is used than when the oil and iron are modified by heat simultaneously to produce the desired surface, the thickness of the oil coating does not in any way modify the resultant surface, except so far as it makes the result inferior—a muddy, varnished-looking bronze.

No new and advantageous result is attained by it. The patented combination of oil and oxide will take place at the surface of the iron where they come in contact, in spite of the fact that more var-

nish than is necessary for best results is superimposed. The iron has been already oxidized at high heat, and a thickness of superfluous oil that would utterly prevent the oxidation of a bright metallic surface becomes comparatively harmless to the result.

See Lowell's Opinion (Jan. 21, 1881).

"The case has been before the court in various stages, and the parties interested are not at present disagreed as to what is the Tucker bronze claimed in reissue No. 2356, namely, iron varnished or oiled and heated, either in one operation or more, in such manner that a color shall be imparted to the iron itself by the heat and also to the oil or varnish. If the iron is first colored and then merely varnished, or if the coating of varnish alone is colored, the invention has not been practiced, so far as the present case is concerned."

See H. Tucker *v.* O. D. Dana, Dist. Mass.

The only remaining question is whether the complainant's patent is broad enough to cover such modification of his process or whether he has limited himself to a precise sequence, in which the acts prescribed in the patent are to be done.

It is a settled rule of interpretation of patents that they shall be construed liberally and that the patent shall be held to be coextensive with the invention if it can be made to do so without violence to its language.

Klien *v.* Russell, 19 Wall., 466.

Carew *v.* Boston Elastic Fabric Co., 5 Fish. P. C., 103.

Haworth *v.* Hardcastle, Webster's Pat. Cases, 480–485.

Ryan *et al. v.* Goodwin *et al.*, 3 Sumner, 519.

No reason has been shown in evidence why the patentee should limit his claims in this respect, and no such intention appears in the patent as reissued. In reissuing the patent, some speculations as to the character of the process are omitted; but the directions for producing the bronze are precisely the same, and the claim is for the process of ornamenting iron in imitation of bronze by the application of oil and heat, substantially as described. If the modification practiced by defendants be a mere change of form, involving no

change of principle, it is covered by a claim for the process substantially as described.

Directions are given for repeating the process in order to deepen the bronzing. Such repetition of the process introduces no new principle, but simply intensifies the result by performing the process several times instead of once only. If the process adopted by the defendants is not a process for producing a bronze surface upon iron by means of oil and heat, applied substantially as described in complainant's patent, what illustration can be conceived of a process that would be a process of bronzing iron by means of a thin coating of oil and a high degree of artificial heat applied substantially as described, and yet not identically as described? If these words have any meaning in the patent, this is a case where they ought to take effect.

But this issue is identical with one of the issues in the former case in this court in the district of Massachusetts. The evidence was that the defendants in that case, The Tucker Manufacturing Company, attempted to evade the patent in precisely the same way, by coloring the iron first by heat before applying the oil. Judge Clifford refers to this defense in that part of his opinion where he says:

"The charge is that the respondents, since they reassigned the patented invention to this complainant, have unlawfully continued to use the same without license and have refused to pay any royalty to him for such, or to acknowledge his legal and just rights under the reissued letters patent. Suffice it to say that the proofs fully establish that charge, and show that the respondents went immediately to work to see if they could not effect the same results as those accomplished by the patented process without infringing the same, and they now contend that they have been successful in their efforts. Instead of that, the Court is of the opinion that they have plainly infringed the patented process; that the attempt to avoid the charge of infringement is merely colorable, and that the complainant is clearly entitled to an account and an injunction."

ARE THE REISSUED LETTERS PATENT VOID FOR VAGUENESS OR UNCERTAINTY?

The opinion of Judge Clifford, before cited, furnishes a complete and authoritative statement on that point:

"Exact and complete description is given in the specification of the steps to be taken in applying the process, so as to effect the described result. Three directions of the kind are given, as follows:

(Then follows a full statement of steps prescribed in the specification.)

"Exhibits showing the practical results of the patented process were given in evidence at the final hearing, and they are abundantly sufficient to prove that the described steps are respectively essential to attain successful results, or, in other words, that it is essential that the surface of the iron should be cleansed from sand, scales, or other foreign matter; that the surface should be covered with linseed-oil, or its equivalent, unmixed with pigment, lacquer, or japan; that the coating should be extremely thin, and that the iron, thus prepared and oiled, should be placed in an oven or furnace and be subjected to a high degree of heat.

Exact description of the invention is required to accomplish three great ends: 1. That the Government may know what they have granted, and what will become public property when the terms of the monopoly expires. 2. That the licensed persons desiring to practice the invention may know, during the term, how to make, construct, and use the invention. 3. That other inventors may know what part of the field of invention is unoccupied. Sufficient appears to show that the description of the invention given in the specification constitutes a full compliance with those several requirements."

Tucker *v.* Tucker M'f'g Co., 10 Official Gazette, 464.

ARE THE REISSUED LETTERS PATENT FOR A DIFFERENT INVENTION FROM THAT DESCRIBED AND CLAIMED IN THE ORIGINAL?

In regard to the second defense in defendants' answer it is sufficient to remark that the words of the specifications of claim in the reissued letters patent are identical with those in the original patent with the exception of a few remarks upon the supposed philosophy of the changes described.

This question also was expressly decided by Judge Clifford in the opinion above referred to:

"Reissued patents are valid, unless the differences between the reissued patents and the original are such that the court can see, upon the comparison of the two instruments, as a matter of legal construction, that the reissued patent is not for the same invention as the original. Common knowledge shows that the mechanism of a loom and of a sewing-machine are essentially different, and it would follow that a patent for one could not be surrendered and reissued for the other, as the court could see, as matter of construction, that the Commissioner, in granting the reissue, had exceeded his jurisdiction. Defects in the description may be cured, but the patentee may not strike out the entire description of one of the ingredients of a combination and insert in lieu thereof a description of other devices, unless it be alleged that such other devices are the equivalents of the device stricken out."

Gill *v.* Wells, 22 Wall., 3.

But in recent case of Tucker *v.* Dana, in the Massachusetts circuit court, Judge Lowell has again expressly sustained the reissued letters patent for the new article of manufacture in the following language:

"The able argument for the defendant requires me to say a word upon the law of the case. No question of novelty or patentability is left open by the agreement, excepting the validity of the reissue as a reissue. The original patent was for the process of making a new kind of bronze, and was reissued in two parts—one for the process and one for the new articles. The new patent for the process was sustained by Clifford, J.: Tucker *v.* Tucker M'f'g Co., 10 Off. Gaz., 464. The present patent for the product was upheld by me on a motion for an injunction in this case on the authority of the Goodyear cases. (See 2 Wall., Jr., 283; *Ib.*, 356; 2 Cliff., 351; 9 Wall., 798.) Counsel at this hearing have cited Powder Co. *v.* Powder Works, 98 U. S., 126, in which it was held that a reissue for the compound of nitro-glycerine with certain other substances was void, because the original patent was for a process of exploding nitro-glycerine. The case is carefully distinguished from the Goodyear cases. 'If,' says Mr. Justice Bradley, 'the patent had been not for the mode of exploding nitro-glycerine, but for the process of compounding nitro-glycerine with gunpowder and other substances, inadvertently omitting to claim the exclusive use of the substances so

produced, the case would have been one of very different consideration' (p. 136). He then shows that this last was the case of Goodyear. It is also precisely this case. Bronzed iron is the necessary product of the process of the original patent." See also ++

"Corrections may be made in the specification, but they must not be of a character to change the substantial nature of the invention either by enlarging or diminishing its legal effect or substantial mode of operation. Questions of some nicety may arise, but the rule being the reissued patent must be sustained unless it appears, as matter of legal construction, that it is not for the same invention as the original, it will seldom happen that the case will be involved in much difficulty. Differences undoubtedly exist between the expressions contained in the respective specifications in this case, but it is clear that they are not of a character to warrant the court in deciding that the reissued patent differs in substance and legal effect from the original which was surrendered." (*Ibid.*, 465.)

Tucker v. Tucker Mfg Co. 10 Off. Gaz. 464

The validity of the reissue patent for the product has been upheld by Judge Lowell. (See opinion.)

Hiram Tucker *v.* Burditt & Williams (Oct. 4, 1879).

"For the purpose of this hearing, the novelty and validity of the patent for the process are admitted, and infringement of the second patent is not seriously questioned. Objection is taken that the subject-matter will not admit of a valid patent for a new article of manufacture; that the Commissioner exceeded his power is issuing two patents; that the decree against the manufacturer frees the article from the monopoly of the patent. * * *

"In the respect to the issue of two patents a large discretion is left to the Commissioner. The matter is specially made discretionary with him in the existing law (Rev. St's, 4916), and such was the construction of the earliest statute (Bennett *v.* Fowler, 8 Wall., 444), and especially in the case of a new article made by a new process the reissue of separate patents has been pronounced valid."

Goodyear *v.* Providence Rubber Co., 2 Cliff., 351; 9 Wall., 788.

DO THE REISSUED LETTERS PATENT PURPORT TO SECURE EXCLUSIVE RIGHTS WHICH IN THEIR NATURE ARE NOT PATENTABLE?

Judge Clifford's opinion is again in point: "Much examination of the second defense (that the process described in this specification was not the subject-matter of invention at the time the original

patent was granted) is unnecessary, as the issue presented is entirely one of fact. Taken as a whole, the proofs are convincing that the oil-coating under the process of the complainant is oxidized with the surface of the iron, and that the joint effect is to produce a new surface resembling bronze in color better calculated to resist the effects of moisture and handling than iron smoothed in the ordinary way."

Judge Lowell, in the case before referred to, has expressly decided that this subject-matter will admit of a valid patent for a new article of manufacture.

"The last objection, that the bronzing of iron does not make it a new article of manufacture within the meaning of the patent law, has been ably argued. The objection does not strike me with sufficient force to require, in this case, that an injunction should be withheld. The patent is *prima facie* valid, and I do not at present see why it may not be sustained. The articles sought to be enjoined must, as I understand it, derive a very considerable part of their value from the beauty given them by the patented process, and therefore there is no reason for refusing to enjoin on the ground that the damage by injunction will be excessive.

"Injunction granted."

JAMES E. MAYNADIER,
ELIHU G. BOOMIS,
Of Counsel for Appellants.

120-92

JAN 4 1887

Supreme Court of the United States,

OCTOBER TERM, 1886.

No. 121.

WILLIAM H. PLUMMER, ADMINISTRATOR OF HIRAM TUCKER, DECEASED, APPELLANT,

vs.

SARGENT AND COMPANY.

Appeal from the Circuit Court of the United States for the District of Connecticut.

BRIEF FOR APPELLEES.

JOHN S. BEACH,
JOHN E. BEACH,
CHARLES B. MITCHELL,
Counsel for Appellees.

On inspection of the original record sent up by the Clerk of the Circuit Court, it appears that the original patent was put in evidence, and a certified copy thereof was sent to this Court, with the usual certificate of its use, as an exhibit in the Court below, although no memorandum of its introduction in evidence appears on the printed record.

Appellees have therefore caused the patent to be printed and annexed to this brief.

Hoggson & Robinson, Law Printers, 88 Church Street.

Supreme Court of the United States,

OCTOBER TERM, 1886.

No. 121.

WILLIAM H. PLUMMER, ADMINISTRATOR OF HIRAM TUCKER, DECEASED.
Appellant,

vs.

SARGENT AND COMPANY.

Appeal from the Circuit Court of the United States for the District of Connecticut.

BRIEF FOR APPELLEES.

STATEMENT.

This is a bill in equity to restrain alleged infringement of two re-issued Letters Patent, No. 2,355 and 2,356 issued Sept. 11th, 1886, to Hiram Tucker, the one for a process of ornamenting cast iron, and the other for the result thereof as an article of manufacture.

Suit was brought in the Circuit Court for the District of Connecticut, and complainant, (appellant,) by his ad-

ministrator, appeals from a final decree dismissing the bill.

The original patent is not in evidence, but appears from the bill of complaint to have been dated Dec. 15th, 1863, and to have covered the process only.

See front cover

The Patents in Suit.

The specifications of the two re-issued patents in suit are identical, except as to the words limiting their respective statements of invention. The claim of the process patent is as follows:

> "What I claim and desire to secure by Letters Patent is the process of ornamenting iron in imitation of bronze by the application of oil and heat, substantially as described."

Record, Fol. 96.

The claim of the other re-issue, for the article of manufacture, is

> "What I claim and desire to secure by Letters Patent is the new manufacture hereinabove described, consisting of iron ornamented in imitation of bronze by the application of oil and heat, substantially as described."

Record, Fol. 101.

In order to understand the claimed novelty of the improvement, the process described in the patent must be carefully distinguished from the common operations of

japanning; and the process patent, in making this distinction, says:

> "Metals have heretofore been lacquered or bronzed by the application of a solution of resin and metallic powders or salts, and dried by exposure to air or heat. Iron has been japanned by covering its surface with oily solutions of asphaltum and pigments, and subsequent application of heat sufficient to produce hardness. These are well known operations.
>
> My invention consists in a process of covering iron with a very thin coating of oil and then subjecting it to heat, the effect of which is to leave upon the iron a firm film, which is very durable and gives iron a highly ornamental surface like that of bronze."

The method of procedure is thus described. First, the preparation of the iron.

> "The surface of the iron is cleansed from sand, scale or other foreign matter, and where fine effects are desired, the surface is best made smooth or polished. Under given conditions of heating and oiling, the finer the polish the lighter is the bronze tint produced." * * * * *

Second, the coating of oil.

> "When the iron is thus prepared, I cover it with a very thin coating of linseed oil, or any oil which is the equivalent therefor, for the purpose here specified (such a coating as I find best attained by applying the oil with a brush, and then rubbing off the oiled surface thoroughly with a rag, sponge, or other suitable implement)—

Third, the application of heat to the prepared and oiled iron.

> "and then place it in an oven, where it is submitted to a degree of heat which may be measured by an intensity sufficient to change a brightened surface of clean, unoiled iron, to a color varying from a light straw color to a deep blue, the lowest degree of heat producing the lightest colored changes and the lightest bronze, and the highest degree of heat producing the darkest colored changes and the darkest bronze.
>
> It is important that the coating of oil be made extremely thin, as a coating of any material thickness will leave a rough or varied surface after the heat is applied."

It will be seen from the above quotations that the three steps of the process are:

1st. To expose the real surface of the iron to be acted on, by removing scale, etc.

2d. To lay on a thin coat of linseed oil, such as would remain after removing the free or non-adherent part by rubbing.

3d. To bake the oiled iron at a heat sufficient to oxidize the metal.

The rationale of the process is evidently this:

When a clean (i. e. unoxidized) surface of iron is exposed to a heat of about 400–420 degrees Fahrenheit, the surface

of the iron becomes of a lemon yellow or light straw color; then, if the heat be increased, the color deepens to an orange yellow, to a brownish orange, to light, irridescent blue, and then to a dark blue—this last color requiring for its production a temperature of about 580 to 600 degrees Fahr. If the heat be raised much above the latter figure the metal becomes black.

The differences of color effect are produced by the accumulation of a layer of oxide of iron on the surface of the metal, which changes its apparent tint as it increases in thickness under the increasing heat.

This phenomenon is caused by interference of light, and is perfectly understood by scientists, to be due to the fact that when a beam of light falls upon a thin, transparent film, a portion of the light is reflected at the external surface of the film, and another portion enters the film and is in part reflected at the second surface, thus traversing a longer path than the first part, and being somewhat retarded in comparison therewith.

The theory of the appearance of color may be stated with sufficient accuracy as follows: When the film is equal in thickness to one-half the wave length of blue light the two reflections of blue light from the two surfaces will interfere and partially neutralize each other, so that the apparent color of the film will be that due to the abstraction of blue light from white:—to wit., yellow of some shade, according as the loss of the blue is more or less complete.

The same effect will be produced if the thickness of the film be one and one-half times the wave-length of the blue or any other uneven multiple of one-half the wave-length of blue light, provided the film be sufficiently transparent.

Since the wave-lengths of different colored lights differ in length, a thin transparent film of varying thickness will, when viewed in white light, display a variety of colors.

The colors of a soap-bubble; of a film of oil on water; of tempered steel; of some insects' wings; are ascribed to this phenomenon by Tyndall in his Notes on Light, and by all other recognized authorities.

The oxides of iron are not transparent except in exceedingly thin layers; therefore but one set of colors can be produced by continued heating of the metal, for at the time when the layer of oxide has theoretically become thick enough to exhibit the yellow tint a second time, it has practically become opaque and remains dull and dark.

What the exact thickness of the layer of oxide is at any given tint is not material, the only point to be noted being that it is to be measured by hundreds of thousandths of an inch. That is to say it has no material thickness apart from the metal beneath.

Now according to the patent, when the surface of the iron has been oiled, the oil is next rubbed off, so as to admit the oxygen of the air into contact with the metal itself.

And when this naked oiled surface is heated in contact with air, films of oxide are of course produced on the iron surface, and at the same time, the chemical change in the iron film is affected and modified by the presence of the oil which is combined with the oxide of iron.

Or as Mr. Justice Clifford, referring to the process re-issue in suit, in Tucker *vs.* Tucker Mfg. Co., 10 Off. Gaz., 464, puts it:

> "High heat, the patentee states, when applied to unoiled iron, will have the effect to produce on the surface of the iron the series of colors pointed out in the specification, but he asserts that a thin coating of oil applied as directed, before heating, the iron has the effect to modify the oxidation, and to produce a new and improved surface resembling bronze. * * * *"

This bodiless film of modified oxidation is the surface, alleged to have been invented by Mr. Tucker, and to be covered by the re-issue in suit.

It was not new to raise colors on iron by heating it.

It was not new to raise these colors and protect and modify them by a covering of lacquer or of baked oil.

Gun barrels, clock pointers, steel pens, fish hooks, watch-springs, etc., etc., were so ornamented before the alleged invention.

(Record p. 55.)

It was not new to bake japan—which is largely composed of linseed oil—in coats of substantial thickness upon metal, at the heat specified in the patent.

Nor is there any doubt but that in such cases the surface of the metal beneath the japan was sometimes oxidised by the heat.

And certainly on the evidence in this cause Tucker can not be claimed to have been the first to produce a film of oxidised iron, irrespective of the presence or absence of a material thickness of baked protective covering above the film.

According to the process described in the patent, the thickness of the oil film is practically the same as the thickness of the iron oxide film, and is so incorporated therein as to leave a metallic surface on the finished article.

If this be a correct statement of the result obtained by rubbing off the oil and then oxidising the oiled surface by heat, the real improvement seems to be clearly distinguished from the common art of japanning, where the very object is to overlay the metallic surface (oxidised or unoxidised) with an ornamental coat of protecting material of greater or less thickness.

THE DEFENDANTS' MANUFACTURE.

The alleged infringing exhibits consists of three butts,

(door-hinges), marked Tucker Exhibit A, Tucker Exhibit D, and Tucker Exhibit DD, respectively.

They were all made by a process which is correctly described in J. Shipman's opinion, as follows:

> "These butts are colored in this way: The sunken parts are first covered with a black japan, and this coat of blacking is baked in an oven at a temperature not exceeding 320 degrees Fahrenheit. This japanning of the sunken parts is immaterial. It is not really claimed to be a Tucker bronzing. The object probably is to make a marked contrast between the sunken and salient parts of the butt."

That is to say, the whole surface of the articles was first japanned in the common way.

> "All but the sunken parts are then ground and subjected to a heat of 480 degrees Fahrenheit, which colors the iron a dark-straw color. The ground-parts of one of the exhibits are nearly, or quite, blue. A coat of copal varnish of substantial thickness is then put on and baked in a heat of not over 300 degrees Fahrenheit. This produces a material coating of oxidized varnish upon the surface of the iron, which can be scraped up by a rapidly drawn knife-blade, as a shaving rolls up before the knife of a plane. It was not claimed by the defendant that the varnish was not oxidized by heat. No proof was offered by the plaintiff in regard to the oxidation of the iron during the second heating, and I do not think it of importance."

(Record, fol. 453.)

From this, it will appear that the process used by the

defendant, is not at all that described in the process patent; nor is it possible except the claim be enlarged by construction to bring the defendants' manufacture within the claim of the product patent.

It will also appear, if that method of construction be adopted, that the effect of re-issuing the original process patent of 1863 in two divisions, one for the process, and the other for the article of manufacture, has been to enlarge the scope of the original patent.

Appellees (defendants), therefore claim.

POINT I.

The re-issue for the article of manufacture is void.

Unfortunately, the original patent was not put in evidence; but the bill of complaint sets forth the scope and effect thereof, and these allegations of the bill are not denied in the answer.

The allegation of the bill is as follows:

> "And thereupon your orator complains and says, that he, being the original and first inventor of a new and useful manufacture of iron ornamented in imitation of bronze, and of the process for producing the same, fully described in the Letters Patent hereinafter mentioned, which manufacture and process had not been known or used before his said invention thereof, and which had not been, at the

time of his application for a patent therefor, as hereinafter set forth, in public use or on sale with his consent or allowance for the space of two years, and, being also a citizen of the United States, did, on the fifteenth day of December, A. D. 1863, upon due application therefor, obtain Letters Patent of the United States, in due form of law, under the seal of the Patent Office of the United States, bearing date the day and year last above mentioned, signed by the Secretary of the Interior, and countersigned by the Commissioner of Patents of the United States, whereby there was granted to your orator, his executors, administrators, and assigns, for the term of seventeen years from the date thereof, the full and exclusive right and liberty of practicting said process for ornamenting iron in imitation of bronze, as set forth in said Letters Patent."

In which the distinction is clearly made between the scope of the *invention*, which is said to consist

"of a new and useful manufacture of iron ornamented in imitation of bronze, and of the process for producing the same,"

and the scope of the patent, which is said to have covered

"the full and exclusive right and liberty of practicing said process for ornamenting iron in imitation of bronze."

But not to have included the new manufacture.

The bill further alleges,

"And your orator further shows that said Letters Patent being inoperative by reason of a defective specification,

through inadvertence, accident, or mistake, the same were duly surrendered; and, upon proper proceedings being had, new Letters Patent for the same invention were issued by the Commissioner of Patents for the United States to the said Tucker Manufacturing Company, as the assignee of your orator, which said re-issued Letters Patent were in two divisions, each upon a separate and amended specification, bearing date September 11, A. D. 1866, and numbered respectively re-issued Letters Patent, No. 2,355, and No. 2,356, signed by the Secretary of the Interior, and countersigned and sealed with the seal of the Patent Office of the United States by the Commissioner of Patents, whereby there was granted to the said Tucker Manufacturing Company, its successors and assigns, for the residue of the term of seventeen years from the date of said original and surrendered Letters Patent, the full and exclusive right and liberty, not only of practising said process, *but of making, using, and vending to others to be used, the said manufacture*, as by said re-issued Letters Patent or duly certified copy thereof in Court to be produced will fully appear."

Thus distinctly alleging that the re-issues covered more than the original patent.

The defendant's answer admits these facts and avers that the re-issues were taken out

"for the purpose of covering as the invention of the complainant, what was not described or claimed in said original Letters Patent as the invention of said complainant,"

And avers that the re-issued Letters Patent are void

> "as being for a different invention from that described and claimed in the said original Letters Patent."

The admissions of the bill of complaint are sufficient to enable the Court to pass upon the question, and in connection with the fact (also alleged in the bill) that the original patent was dated December 16th, 1863, and the re-issues dated September 11th, 1866, they are enough to bring the case within the familiar doctrine of Miller *vs.* Brass Company.

If however the Court regards the allegations of the bill as too indefinite to amount to a perfect admission of the facts therein set forth, we submit that these allegations are nevertheless sufficient to raise the issue of law as to the validity of the patent for the article of manufacture; and that the situation is one where the Court may, in its discretion, look to the public records of the Patent Office to see whether the orignal patent was such as the bill alleges it to be.

The appellees (defendants) have caused printed copies of the original patent to be made, and ask permission of the Court to annex them to this brief.

We distinguish this case from Bates *vs.* Coe, 98 U. S., 31, where the Court refused to consider the invalidity of the re-issue on the ground that the original patent was not in evidence, because in the present case the bill recites the

substance of the claim of the original patent: that is to say, the complainant (appellant) has himself spread it upon the record.

It was not necessary for him to do so, but he did it; and the defendants (appellees) have upon that information denied the validity of the re-issues.

Enough facts are apparent on bill and answer to raise the issue of law, and the defendants (appellees) claim,

1st, that the re-issue for the article of manufacture is void, upon bill and answer,

2d, that the issue of law being properly raised, the Court may order the production of the original patent, if inspection of that patent is necessary to a determination of the issue.

3d, that the re-issue for the article of manufacture is void unless limited to the article when produced by the particular process described.

The patent does not identify the article except by reference to the process. It points out no test by which it may be recognized, aside from the process of making it, and therefore cannot lawfully cover more than the product of the process described.

Cochrane *vs.* Badische Anilin Fabrik,
111 U. S., 293.

POINT II.

Defendants (appellees) do not infringe either of the re-issued patents.

Mr. Earle, the expert witness for the defendants (appellees), thus compared the process used by the defendants, with the process described in the patent.

TUCKER PROCESS.	DEFENDANTS' PROCESS.
FIRST.—The iron is cleaned in the usual manner.	FIRST.—The iron is cleaned in the usual manner.
	SECOND.—The iron is coated with Japan.
	THIRD.—The coated iron is baked to harden the Japan.
SECOND.—The salient surface of the iron is ground and polished smooth and bright.	FOURTH.—The salient surface of the iron is ground and polished smooth and bright.
THIRD.—The polished surface is coated with oil and wiped off.	
FOURTH.—The oiled iron is placed in an oven about 400° Fah., and upwards, and heated until the desired color is attained, so far as it can be by the single application of oil. Other coatings and bakings increase the depth of color.	FIFTH.—The polished iron is placed in an oven heated to about 400° to 450° Fah., or until the desired color is attained. The higher the heat or the longer the exposure the deeper and darker the color, beginning from the natural color of the iron through the lightest straw color, brown to blue if required.

SIXTH.—After the iron has been cooled it is dipped in varnish, "coach or copal," and permitted to drip a short time.

SEVENTH. — The varnished iron is placed in an oven heated to a degree not exceeding 300° Fah. until the varnish is dry or hard.

In the Tucker process the oxidation is produced by the action of heat upon combined oil and iron.

The Tucker process produces a surface uncovered or uncoated.

In defendants' process the color is produced by heat upon the iron alone.

Defendants' process necessarily a coating upon the previously colored surface.

Laying aside the preliminary process of japanning to which the defendants' butts are subjected, and starting from the time when the prominent parts are ground away to expose a clean surface of iron, the process employed by the defendants (appellees) is not of the process patent; nor do we understand that any serious claim is made that the process of first oxidising the surface and then baking on a thick coat of copal varnish, so as to leave an overlaying and protecting coat of it on top of the oxidised surface, is the same process as putting on a coat of linseed oil, rubbing it off carefully for the precise purpose of avoiding an overlaying coat, and then oxidising the oiled metallic surface.

Manifestly if the defendants make the patented bronze, they make it by a different process from that described in the process patent.

The infringement, if any, is of the patent for the article of manufacture; and the claim of that patent is:

> "—The new manufacture hereinabove described, consisting of iron ornamented in imitation of bronze by the application of oil and heat, substantially as described."

Assume that the claim is capable of two constructions.

> "1st. By referring the words substantially as described to the phrase 'application of oil and heat,' the claim can be so limited as to be simply for the product of the process described; or
>
> 2d. By referring the words substantially as described to the words "iron ornamented in imitation of bronze," the claim may be construed so as to cover the article of manufacture, irrespective of the process of producing it.

In the first case the defendants do not infringe because they do not apply oil and heat in the manner described in the patent, nor can their method be included in the described process.

(*a*). Because defendants' way is substantially different in the operations themselves, and in the result arrived at.

(*b*). Because a process is *ex vi termini* a method, and only one method, of getting the result. It may be in-

fringed by one who adopts it entire, or one who adopts it with unsubstantial changes; but no doctrine of mechanical equivalents can apply to bring into its scope a process practically different.

Therefore if the words substantially as described refer to the process, there is no infringement by the defendants (appellees), nor yet any apparent enlargement of the scope of this re-issue beyond the scope which the bill of complaint alleges to have belonged to the original patent.

If, however, the claim be construed to be for an article of manufacture, irrespective of the process employed to make it, there is a very plain enlargement of this claim beyond the statement of the scope of the original patent contained in the bill of complaint.

Defendants (appellees) claim that, if a patent is capable of either a broad or a narrow construction, and the bill of complaint sets out facts, which would invalidate the patent upon the broad construction, the narrow construction should be taken to be the true one.

For the statements of the bill of complaint as to the scope of the original patent, are true, as against the complainant (appellant) to combat any claim advanced by the complainant; even though they may not be regarded by the Court as definite enough to support the claim of invalidity of the re-issue which is advanced by the defendants (appellees.)

Upon the broadest possible construction defendants do not infringe.

If the claim be irrespective of the particular process described, it is still limited to the article described. * * * Not every imitation of bronze infringes, but only those having the ear mark of the patented article.

The re-issue for the article of manufacture says:

> "My invention consists in a new article of manufacture produced by covering iron with a very thin film of oil and then subjecting it to heat, the effect of which is to leave upon the iron a firm film and which is very durable and gives the iron a highly ornamental appearance, like that of bronze."

The patent defines the very thin film of oil to be

> ("such as I find best attained by applying the oil with a brush and then rubbing off the oiled surface thoroughly with a rag, sponge or other suitable imlpement.")

And the degree of heat is specified as

> "A degree of heat sufficient to change a brightened surface of clean unoiled iron to a color varying from a light straw color to a deep blue."

Upon reading that patent for the first time, one who was familiar with the art of japanning would be struck

by the thinness of the oil film described. That is in fact the essential thing, and the result of it is to leave no material coating on the metal.

Judge Shipman in deciding the case below said:

> "Tucker bronze is a new surface of the iron produced by the joint oxidation or by the successive oxidations of the iron and a film of oil or varnish thereon, by means of high heat, and is not a new coating of oxidised oil or varnish upon the iron. The oil must be applied in such a way that after oxidation there is no substantial covering of baked oil upon the surface of the iron. The surface of the iron is a bronzed surface because the film of oil is so thin and is so closely united with the pores of the iron as to be almost a part of it, and does not form a substantial covering like a coat of varnish over the surface of the iron."

And Mr. Justice Clifford, in deciding Tucker *vs.* Tucker Mfg. Co., 10 Off. Gaz., 464, thus construed the re-issued process patent in suit:

> "Properly construed, the invention of the complainant is the process of ornamenting iron in imitation of bronze by the application of oil and heat, as specifically described in the specification, by which a new surface is produced to the iron, which resembles bronze in color, and is better calculated to resist the effects of moisture than iron smoothed in the ordinary way."

Mr. Earle, the defendants' (appellees') expert, following

Mr. Justice Clifford's definition, testified as follows. (Record, fol. 414):

> Int. 7. State what you understand to be the way in which the oil and heat co-operate to produce the result described in the two patents referred to, and state also what you understand to be the characteristics of the result which is produced?
>
> Ans. I understand that the oil which is left upon the iron is only so much as enters the pores of the iron, and that in the heating process the iron and oil are oxidised together, so that in fact whatever oil remained thereon has become practically a part of the iron itself, and this is the peculiar characteristic of this process that the oil does not form such a coating on the surface as to be oxidised thereon, independent of the iron, or to form a surface of film covering the surface of the iron."

The presence of a new surface *of* or *to* the iron, and the absence of a substantial covering is the ear-mark of the new manufacture as distingushed from japan; and, as already pointed out, the compound film of oxidised iron and oxidised oil, is necessarily and scientifically limited to an exceedingly thin layer.

Turning now to the defendant's (appellees) manufacture, Judge Shipman says:

> "A coat of copal varnish of substantial thickness is then put on and baked in a heat of not over 300 degrees Fahrenheit. This produces a material coating of oxidised varnish upon the surface of the iron which can be scraped up by a

rapidly drawn knife-blade, as a shaving rolls up before the knife of a plane."

That is to say the defendant's (appellees) manufacture has not the ear-mark by which you are to know this new article when you see it, but on the contrary has the ear-mark of japan, to wit:—a substantial thickness of coating separable from the iron.

We oxidize the iron, and then bake on a coat of copal varnish at heat less than that specified in the patent, which varnish, like all other japans, becomes darkened by the heat, and remains as an ornamental and protective coating upon the surface of the metal.

The claim of the complainant, (appellant). is, that by first oxidizing the metal, and then baking the varnish, we do in two steps what the patent directs to be done in one, and that the extra thickness of our coat is immaterial, for some other reason not very well understood by themselves.

Therefore, they have re-issued the re-issue by parol, and start with the proposition that every time you find oxidized iron and baked oil on the same piece of metal, you find Tucker bronze.

Which is just as absurd as to say that every time you find sand and soda together you find glass; or that zinc and copper, however associated, invariably make brass.

It is plain on the face of this patent, and it has been judi-

cially determined by Mr. Justice Clifford and Judge Shipman, that the object of the patentee is to produce a new kind of surface of or to the iron. That new surface was not baked oil; it was not common oxide of iron; but it was that chemical (or mechanical) product which results when clean iron is oxidized by heat in the presence of a film of oil, so thin as not to exclude the oxygen of the air from the heated metal. The result being a hard and an extremely thin film of modified oxidation.

Now the defendant's butts have not only a different surface from this hard, thin film, but a consideration of the process employed by the defendant will show that no such modified oxidation can possibly result from that process.

The iron is first oxidized. It is then varnished with a coat of substantial thickness. It is then subjected to heat sufficient to harden and discolor the varnish, but not to oxidize the iron any further.

There is no time when the iron is oxidizing in the presence of oil, and no opportunity for the formation of the "new surface."

In other words, we simply oxidize the surface, and then japan it with a semi-transparent japan, whereby we get a surface of varnish, or japan, instead of a chemically altered surface of metal.

And the patent cannot be said to describe, or to suggest, his manufacture of the defendants, who make no other

departure from the ordinary art of copal japanning, than to oxidize the surface of the metal before applying the japan.

But appellee denies that Tucker was the first inventor of the process described in the re-issues in suit.

POINT III.

The defense of prior use.

This defense sets up the prior knowledge and use of the Peck & Walter Co., and Peck & Walter Mfg. Co., of New Britain, Conn., who were the predecessors in business of the appellee.

Also of J. O. Smith & Co., of Middletown, Conn.

There are put in as Exhibits;

Ruff Art Exhibit;
Art Casting, No. 1;
Art Casting, No. 2;
Art Casting, No. 3;
Looking-Glass Frames, I and I'.

Mr. Tucker recognizes them as exhibiting beyond all question, evidence that they were made by the process described in his patent.

"X-Int. 27. In your opinion is defendant's exhibit Ruff Art Exhibit, Tucker bronze?

Ans. I should say it was a very good specimen.

X-Int. 28. Within Letters Patent, No. 2,356?

Ans. Undoubtedly.

X-Int. 29. And No. 2,355?

Ans. Yes.

X-Int. 30. Is defendant's exhibit 'Art Casting, No. 1,' within re-issued Letters Patent, No. 2,356, and finished by the process described in No. 2,355?

Ans. Undoubtedly this is Tucker bronze.

X-Int. 31. And is the same true of defendant's exhibit 'Art Casting," No. 2?'

Ans. Yes.

X-Int. 32. And is the same true of defendant's exhibit 'Art Casting, No. 3?'

Ans. I should say it was; the portions that appear to the eye not covered with the bronze-powder. I have no doubt the surface under the bronze-powder is of the same character, but am not absolutely certain.

X-Int. 33. And is the same true of defendant's 'Exhibit I?'

Ans. Yes.

X-Int. 34. And is the same true of defendant's 'Exhibit I'?'

Ans. Yes."

Complainant's Record, p. 33.

The question whether these exhibits antedates the invention depends:

1st. Upon the time when the things which they purport to represent were made.

2d. Whether they do, in fact, correctly represent the things then made, and the process by which they were made.

1st. If they were made at all, they were made by Mr. Brocksieper at New Britain, prior to the year 1859.

JOHN RUFF.

'Int. 4. Are you a native of the United States? If not, where were you born; and when did you come to this country?

Ans. I was born in Germany. I came to this country in the spring of 1850.

Int. 5. Where did you first go, and into whose employment, after you came?

Ans. Colt's Armory, in Hartford, Conn.

Int. 6. How long did you remain there?

Ans. From spring to fall.

Int. 7. If at any time you went into the employment of Peck & Walter, New Britain, Conn., when was it?

Ans. In 1851; in January.

(Record, p. 143.)

Int. 19. How long did you remain in the employment of the Peck & Walter Mfg. Co. before you left?

Ans. Till 1854; in the fall I left them.

Int. 22. Did you return to the employment of Peck & Walter Mfg. Co. at any time, and if so, when?

Ans. I did return in 1857; early in the spring.

Int. 23. Whom did you find in charge of the manufactur-

ing business of Peck & Walter Mfg. Co. at the time of your return in the spring of 1857?

Ans. Mr. J. B. Sargent.

(Record, p. 144.)

Int. 39. When were articles like Exhibits Art Castings, Nos. 1 and 2 made, and by whom?

Ans. They were made by F. W. Brocksieper. He done the finishing.

Int. 40. When were they made, having reference to the time when you left in 1855?

Ans. They were made before I left.

(Record, p. 146.)

Int. 49. Do you remember what year it was that J. B. Sargent & Co. removed from New Britain to New Haven?

Ans. In the year 1864; in the spring.

Int. 50. Did you come with them?

Ans. I did.

Int. 51. Did Mr. Brodksieper come with them?

Ans. He did not; he was not employed at that time by the company.

Int. 52. How long before that had he left the employment of the company. In what year?

Ans. If I remember right, it was in 1859 when he left the employment of the company.

(Record, p. 147.)

F. W. BROCKSIEPER.

Int. 2. When did you come to the United States, and from what country?

Ans. I came from Prussia in 1847.

Int. 7. Where were you first employed in the United States, and for how long?

Ans. By Janes, Beebe & Co., New York, for one year.

Int. 8. What was the nature of your occupation there?

Ans. Modeler and pattern maker principally.

Int. 9. By whom were you next employed, and for how long?

Ans. Next I was employed by Peck & Walter and their successors for about ten years, more or less.

Int. 10. Where was the business of Peck & Walter and their successors carried on?

Ans. In New Britain, Conn.

Int. 11. After you left the employment of Peck & Walter and their successors, Where did you go, and if at any time you returned to the employment of them, or their successors, when was it, and how long did you remain?

Ans. In 1859, if I remember right—between 1859 and 1860 I left the employment of the successors of Peck & Walter, which was Sargent & Co, and started business for myself to manufacture coffin trimmings; before the war broke out, or just about that time, I removed my business to Montreal, Canada; in about five years from the time of leaving Sargent & Co., I returned to them to work.

Int. 12. And have you been in their employment ever since?

Ans. I have.

(Record, p. 168, 169.)

Mr. Joseph B. Sargent, Mr. Henry F. Peck, Mr. George H. Sargent, and Mr. Newton W. Perkins, also testify that these goods were made by the Peck & Walter Mfg. Co. prior to 1861.

Date of Complainant's Invention.

Prima facie, it is of the date of his patent—Dec., 1863.

But we are content Mr. Tucker should fix his own date in his own way.

X-Int. 40. You say, in reply to Question 4, referring to this bronze in question, "I, immediately after the discovery of this invention, began to manufacture the patented goods." When was that?

Ans. Well, I began to manufacture them before patented. I think in 1862; perhaps, a little earlier.

X-Int. 41. You say, "I, immediately after the discovery of this invention, began to manufacture the patented goods." How long a time do you include in the expression "immediately after?"

Ans. Well, I should say I began to manufacture the same afternoon, or the next morning.

X-Int. 42. You say, in reply to Question 4, that you again began this series of experiments about 1860 or 1861. Did you not make the discovery of the invention before 1862?

Ans. Thereabouts. Not long before.

(Record, p. 51.)

2d. These exhibits correctly represent the results of the processes of ornamenting iron by the application of oil and heat, as used by Mr. Brocksieper at New Britain, prior to his leaving in 1859.

The witnesses on this point are of two classes:

1st. Those who used, or saw used, the process.

2d. Those who saw the result of the process.

1st. Those who used, or saw the process as used.

JOHN RUFF.

Int. 33. Please look at the articles marked "Defendant's Exhibits Art Castings Nos. 1 and 2, J. B. M., Special Examiner," and relate, in your own way, when, and where, and by whom, and by what process you first saw any article of iron bronzed or colored on its outer surface, so as to look like these exhibits?

Ans. The first time I saw it done was by F. W. Brocksieper. I had the castings called a watch stand, and these watch stands looked not as if it was painted, neither did they look the natural color of iron. I got the casting from a man—I could not remember his name, now—he brought it from the old country and, if I remember right, that was in the year 1852. I did show Mr. Brocksieper the article, and I told him I wished to know how that was done, because it did not look like the natural iron, neither could I see any paint on it. Brocksieper said I must know all about it as a lockmaker from the old country. I told him I did not know how it was done. (Answer objected to as incompetent), and I told him neither did I believe he knew how it was done, and we had some words about it, and Brocksieper promised to show me that he knew how to do it. Then I took the original—there were two parts, a stand and the other part was screwed on—apart and brought it to Mr. P. Bradford, at that time foreman in the iron foundry, and I

requested him to make me castings from it, which he did, and after receiving the castings Brocksieper told me to brush it clean, and I brushed it with a wire brush made like a broom, and when it was clean I showed it to Mr. F. W. Brocksieper, and he left and went away, and come back with a cup of oil what he called linseed oil, and a brush, and then he began to brush the stand and the other part all over with the oil, what he called linseed oil; then we went down stairs to the forge fire; he took it in forging tongs and held it over the fire till it was done, and it looked what I at that time thought superior to the original, and I was satisfied that Mr. Brocksieper knew how to do it and myself too.

Int. 34. Do you remember what that watchstand, from which you had the castings made, was intended to imitate in its pattern?

Ans. It represented the Strasbourg Clock.

Int. 35. When you first saw the original watch stand, what was its external appearance?

Ans. It did not look like the natural iron, neither did I see any painting on it.

Int. 36. What did it resemble in its color and appearance?

Ans. The edges of the castings what was rubbed off clean, looked like brass or bronze color.

Int. 37. What did you suppose it to be when you first saw it, and I mean as to its external color and appearance?

(Objected to as incompetent.)

Ans. My first impression was that it was brass castings, till further examination I found it was iron. I scratched it with a knife.

Int. 38. What, if anything, do you know of Mr. Brock-

sieper's coloring or bronzing other articles of iron by the same process, after the watch case was bronzed and before you left the employment of the Peck & Walter Co. in 1885?

Ans. I have seen some of these things like those lying on the table—"Art Castings Nos. 1 and 2."

Int. 39. When were articles like exhibits "Art Castings Nos. 1 and 2," made, and by whom?

Ans. They were made by F. W. Brocksieper. He done the finishing.

(Record, p. 145, 146.)

X-Int. 79. Do I understand that you have never done bronzing, yourself, like this on "Art Exhibits Nos. 1 and 2?" That the process has never gone farther than cleaning the castings for bronzing in your hands; am I right?

Ans. Yes, sir; I made some for myself, but not for the company. I do remember that I made one or more sewing screws; it was a dolphin for using a sewing bird; it was cast iron, and I finished it the same way.

X-Int. 80. When did you do this?

Ans. I should think, if my remembrance is right, in 1852 or 1853. It was before these sewing birds came out; at least, before I saw these sewing birds popular around.

X-Int. 81. Where is the dolphin now that you said you made? What did you do with it?

Ans. I can tell you what I done with it, but where they are now I cannot tell you. One I presented to Mrs. Brocksieper, the wife of Mr. Brocksieper, and the others I presented to the packing-room girls, what was working there at the time.

X-Int. 82. Was this before, or after, the experiments which you have described in your answer to Interrogatory 33?

Ans. It was after these watch-stands was made.

X-Int. 83. Describe fully the process by which you prepared the dolphin, and produced this bronze on it.

Ans. First, I took the casting, made a joint, put screw-hole in for the spring, smoothed it all off, brushed it and chased it where it was necessary, made a screw and the thing where the screw goes in,—a sort of loop,—I don't know what you call it, and then, when everything was clean, I took some of that oil which Mr. Brocksieper give me, and brushed it down the different parts of the dolphin, loop and screw, and then done every piece singly over the fire on the forge, and then I put them together, put a spring on, rivet in the joint and rivet on the loop, and put the screw in, rivet the washer on the screw inside, and then I call it finished.

(Record, p. 150, 151.)

X-Int. 92. How did you clean the surface of the dolphin?

Ans. With a wire-brush.

X-Int. 93. What kind of oil did you put on, and how did you put it on?

Ans. It was linseed oil, put on with a brush, such as is used by painters.

X-Int. 94. Was it common raw linseed oil which you used?

Ans. I believe it was.

X-Int. 95. Give the particulars of the way you heated it. Where, and how long?

Ans. I done it in the factory, up in New Britain, of Peck & Walter, in the west-end building; that was a two-story building, and in the second story we done the finishing, filing, burnishing, putting things together and riveting, and on the first floor there was a drop-press and a blacksmith's forge, where we done our forging, and there I done

the heating for bronzing. I can't positively say how much time it took, but I had it in the tongs, or, rather, on the iron laying over the fire, till I thought it was good enough. I could not get away in that time, when I had it over the fire, but I can't tell you exactly the time which it took. It may be that it took me an hour, or less or more.

X-Int. 96. When complete, did the surface of your dolphin have a bronze color, like "Art Castings, Exhibits No. 2 and No. 1?"

Ans. It had the head part of the fish like the exhibits, the rest was darker.

(Record, p. 152.)

X-Int. 148. Where is the watch-stand that you have described as made for you, in answer to Interrogatory 33? What did you do with it?

Ans. I can't tell where it is. When I moved away from Brocksieper's, where I was boarding, I left it there.

X-Int. 149. Do I understand you that "Art Castings, Nos. 1 and 2," correctly represent, in color and finish, this watch-stand made as described in the answer to Interrogatory 33?

Ans. As far as I remember, I call it the same finish. Different patterns make different appearance as to looks, but everyone could see that it was finished the same way as "Art Castings, Nos 1 and 2."

(Record, p. 157.)

F. W. BROCKSIEPER.

"Int. 28. Please look at the exhibits now shown you, marked defendant's exhibits 'I,' 'I',' and say, if you can,

by whom they were ornamented so as to have the appearance which they now present?

Ans. They were ornamented by myself.

(Defendant's Counsel put the exhibits in evidence, and they are marked Defendant's Exhibits, "I," "I'," J. B. M., Special Examiner.)

Int. 29. What are the articles called, to which your attention has just been directed?

Ans. Looking-glass frame, or toilet-frame.

Int. 30. What was your first knowledge of looking-glass frames, or toilet-frames, ornamented like those exhibits? I mean, when was it done, where was it done, and by whom?

Ans. In about 1856 or 1857, when Mr. Sargent took charge of the Peck & Walter Manufacturing Co. I myself made the first toilet-frames, or looking-glass frames with stands, in the company's factory.

Int 31. What was the process used by you in the ornamenting of those articles, as compared with the process you have already described as being used in ornamenting picture-frames?

Ans. The same as the picture-frames, with the exception they was not copper-bronzed and sized after they was baked.

Int. 32. To what extent, prior to your leaving the employment of the company, in 1859, had you used this process for ornamenting looking-glass frames and similar articles?

Ans. Of the looking-glass frames of one pattern, which I have not been able to find since, I made a hundred; of those like exhibit here, not a great many; made some coat and hat hooks, jamb hooks; I made several batches of from twelve to twenty-four dozen at a time. Of the Brocksieper patent sash

fasteners I don't know exactly how many—a considerable number. Of the cupboard catches several batches, and other ornamented articles only a few, with the exception of one article—a horse which we used for a saddlers' sign, we made a considerable many.

Int 33. Do you know what became of the looking-glass frames, mentioned in your last answer, that you made during that period?

Ans. I sold them to the shop-hands and acquaintances in New Britain, because the company would not accept of them, being out of the line of their business, and they was left in my hands.

(Record, p. 171, 172.)

X-Int. 179. What was the process of finishing frames like exhibits 'I,' and 'I'?'

Ans. After cast, grate was ground off, sand brushed out clean, sandpapered, or emerypapered, the high points sized and baked.

(Record, p. 187.)

X-Int. 182. Do you remember what heat you used?

Ans. Those over the forge, I don't know what heat I used those in the yard kiln, I don't know what heat I used; but those in the Gebhardt kiln, we used from 400° to 500° Fahrenheit.

(Record, p. 188.)

Int. 35. You have spoken in one of your last answers of a horse, used for a saddler's sign; do you know whether the original pattern from which the castings for that article was made is still in existence?

Ans. Yes, sir; still in existence.

Int. 36. Please look at the Exhibit now shown you,

marked "Defendant's Exhibit, Art Casting No. 1," and say whether that horse was cast from that original pattern?

Ans. Yes, sir; this was cast from the original pattern which I engraved myself.

Int. 37. By whom was this Exhibit, "Art Casting No. 1," ornamented, so as to look as it does now?

Ans. By myself (which was called at that time the bay horse, our bay horse); in the presence of John Ruff the whole work was done.

Int. 38. How did the process by which you ornamented "Art Exhibit No. 1," compare with the process which you used in New Britain for ornamenting the horses which you say were used for saddler signs?

Ans. The process was just precisely the same that it is now, with the exception then we polished the highest parts of the casting with sand paper or emery paper, and now we polish the highest parts with the wheel and emery; otherwise the process is just the same as it was then.

(Record, p. 172.)

X-Int. 72. When and where and upon what article did you first practice the process described by you as used upon "Brocksieper picture frame" in producing the ground work?

Ans. As far as I can remember, I made several watch-stands representing the clock of Strasburg, in imitation of the casting, which was a Berlin casting, bronzed in the same manner, in New Britain. I believe it was in the neighborhood of 1852, or 1853, I could not be positive; it was a good many years ago.

X-Int. 73. Have you heard or read the deposition given by John Ruff in this case?

Ans. I have not.

X-Int. 74. Were those watchstands the first articles you made by the process described by you as used upon "Brocksieper picture frame?"

Ans. As far as I can remember, yes.

X-Int. 75. What difference, if any, was there between the treatment of the said watchstands and the exhibit "Brocksieper Picture Frame" by you in producing the ornamental finish? State fully.

Ans. They both were sized and baked over a blacksmith's forge fire; the watchstand, I believe, was not further treated, *i. e.*, dipped; whereas the picture frame was sized over again and the prominent points covered with copper bronze.

X-Int. 76. Do you recall any further difference between the treatment of the two articles?

Ans. Not that I know of in the way of bronzing.

(Record, p. 177.)

X-Int. 86. When did you first practice the process described in your cross interrogatory 73, upon the bay horse casting? Repeat that description and state when you began to practice it.

Ans. I think that we started to make them in that way between 1850 and 1852. After the casting is cast by facing the sand they was cleaned with a wire brush, the gates ground off, the prominent points properly sandpapered, then oiled and baked over a blacksmith forge until it had the appearance of a bay-colored horse, then we sized the strap work and part of the saddle and some other prominent points and bronzed them with powder bronze.

(Record, p. 179.)

2d. Those who testify to their knowledge of the result of this proeess as shown by these exhibits.

PURMONT BRADFORD.

Int. 4. When did Sargent & Co. remove their business to its present locality in New Haven?

Ans. In 1864.

Int. 5. Where had the business been conducted by its predecessors before that time?

Ans. New Britain, Conn.

Int. 6. Who had the management and control of the business at New Britain, at the time of its removal to New Haven, in 1864?

Ans. J. B. Sargent.

Int. 7. When did Mr. Sargent come to New Britain to take charge of the business?

Ans. In 1856, I think.

Int. 8. What was your position at that time?

Ans. Foreman in the iron foundry.

Int. 9. How long after he came did you continue to act as foreman of the iron foundry?

Ans. I should think about one year.

Int. 10. In what capacity did you then act?

Ans. As the superintendent.

Int. 11. And have you continued to be superintendent from that time to the present?

Ans. I have.

(Record, p. 195.)

Int. 59. Please look at the exhibits "Art Castings No. 1 and No. 2," and see whether you do or do not recognize

them as correct representations of articles manufactured at New Britain prior to the removal to New Haven?

Ans. I think they correctly represent what we used to make there. These were made in quantities while I was in the foundry.

Int. 57. Do you mean before you became superintendent?

Ans. I do.

Int. 58. Please tell us what you know about them.

Ans. I used to cast them, send them to be finished, and see them after they were finished.

Int. 59. About how many did you cast at a time?

Ans. About one hundred.

Int. 60. What kind of patterns were used; what was the material of the pattern?

Ans. Brass.

Int. 61. Are there any of these patters which you then used while you were foreman of the foundry at New Britian still in existence?

Ans. There is. This is one of them. (Pattern is put in evidence and marked "Art Casting Pattern No. 1. J. B. M., Special Examiner.") This is another. (Pattern put in evidence and marked "Defendants' Exhibit Art Casting Pattern No. 2. J. B. M., Special Examiner.")

Int. 62. Have you any other relics relating to this horse, "Art Casting No. 1?"

Ans. I have some of the stirrups here. (Defendant's counsel puts stirrups in evidence, marked "Defendant's Exhibit Stirrups. J. B. M., Special Examiner.")

Int. 63. Are these the original stirrups, cast for the purpose of being attached to horses, like Exhibit "Art Casting No. 1?"

Ans. They are.

(Record, p. 199, 200.)

JOHN C. HOECKH.

Int. 39. Look at Defendant's Exhibits, Art Castings No, 1, and 2," and say when you first saw things like those. I mean like them in shape and color, and style and finish?

Ans. In 1853 or 1854.

Int. 40. Where did you see them?

Ans. In New Britian.

Int. 41. Do you mean at Peck & Walter Co.'s factory, in New Britian?

Ans. Yes, sir.

Int. 42. Who finished such articles, at the time you named, giving them the color and appearance shown in these exhibits?

Ans. I finished them—like them. Mr. Brocksieper finished them.

Int. 43. Who did you mean to say finally finished the castings like these exhibits?

Ans. Mr. Brocksieper.

Int. 44. Did you, yourself, finally finish any of them?

Ans. No, sir.

Int. 45. Did you do any work upon these castings before they were finished by Mr. Brocksieper?

Ans. Yes, sir.

Int. 46. Under whose direction did you do this work?

Ans. Under Mr. Brocksieper's.

Int. 47. Will you please look at the Exhibit now shown you, without reading the label attached, and say what stage of the casting of articles like "Art Exhibit, No. 1," it represents?

Ans. It represents the appearance of a horse as it comes from the foundry.

Int. 48. Do you mean it represents the casting as it

came from the foundry, at the time that you worked upon the castings?

Ans. Yes, sir.

Int. 49. What did you do to this casting first?

Ans. Ground off the gate.

Int. 50. What did you next do to it?

Ans. Cleaned him off with a wire brush.

(The Exhibit as to which the witness has testified in his last four answers is marked Defendant's Exhibit "Ruff Art Exhibit Casting from Mould.")

Int. 51. Will you please look at the Exhibit now shown you, marked Defendant's Exhibit "Ruff Art Exhibit Casting," and say whether or not it correctly represents the casting of "Art Exhibit No. 1," after the same had been cleaned off with a wire brush?

Ans. Yes, sir.

Int. 52. What did you next do to these castings?

Ans. Brightened up the prominent parts with sand or emery paper.

Int. 53. After the castings had been thus cleaned and polished, into whose possession did they go?

Ans. Mr. Brocksieper's.

Int. 54. Did you ever see Mr. Brocksieper finish any of these castings, after they had been cleaned and polished as you have described?

Ans. Yes, sir.

Int. 55. But as I understand it, you did not yourself finish any of them?

Ans. No, sir.

(Record, p. 216, 217.)

JOSEPH B. SARGENT.

Int. 7. Please look at the horse casting, marked Defendant's Exhibit "Art Casting No. 1." and say whether you recognize it as among the articles, sold by you, prior to your removal to New Britain, and if so, from whom you received it?

Ans. Horses of this description, of this pattern and color, were kept by me in stock and sold as a regular article of sale, and were received by me, first from Peck, Walter & Co., and then from Peck and Walter Mfg. Co., and perhaps as early as the time Peck & Walter; I am not quite sure about that.

Int. 8. You say that the horses, so sold by you, were of the same pattern and color as this Exhibit; how did they compare with the Exhibit in their style and finish?

Ans. The style and finish, or part of what we sold, were precisely the same as that of this Exhibit.

Int. 9. Were there any other horses, of the same general character, finished in a different style, sold by you at the same time?

Ans. There were.

Int. 10. Please look at this Exhibit, which is now put in evidence and marked Defendant's Exhibit "Art Casting No. 3. J. B. M., Special Examiner," and say, whether you recognize it as being one of the styles, and sold by you as the manufacture of the New Britian firm to which you have alluded, prior to your removal to New Britian?

Ans. I do recognize it as one of the styles of finish I used to sell at that time.

(Record, p. 225.)

X-Int. 99. Were any other goods finished like "Art

Casting No. 1," at that time, before you went to New Britain, to your knowledge; I mean in color and appearance and finish?

Ans. I was not aware of any being finished by the Peck & Walter Mfg. Co., before I went to New Britain, except the horse, and perhaps coat and hat hooks, and jamb hooks, and picture frames I am certain of being finished before I went to New Britain, and, I am also certain, that "Art Casting No. 2" and another art casting of about the size of "Art Casting No. 2," representing St. George on horseback spearing a dragon lying under the horse. There were several other art castings, of which quite a number were on hand when I went up to New Britain, but I cannot recall what they represented; they were similar in workmanship and general character, and the same kind of finish as "Art Castings No. 2 and No. 1."

X-Int. 100. I observe that you limit your answer to Cross-Interrogatory 99 to goods made by the Peck & Walter Co. I will repeat the question: Had you seen that finish on goods other than those made by the Peck & Walter concern at the time referred to?

Ans. I remember, while I did business in New York, that I was in New Britain, and inquired particularly how the finish of "Art Casting No. 1" was done, and that makes me think I couldn't have known of other goods being made with the same finish, as it was novel to me at the time.

(Record, p. 235.)

HENRY F. PECK.

Int. 11. Will you please look at this article, marked

"Art Casting No. 1," and say, whether or not, you recognize it as something of the same character, style and finish, as you have seen before this time?

Ans. I recognize this article.

Int. 12. When and where did you first see articles of that form finished in that style?

Ans. I saw them, at different times, while in the employ of the Peck & Walter Mfg. Co.

Int. 13. What occasion or opportunity did you have for seeing them at that time?

Ans. I saw them in the packing room; they were brought in there as they were finished; sometimes I saw them in the hands of Mr. Brocksieper, who was then in the employ of the Peck & Walter Mfg. Co.

Int. 14. What was done with these articles after they were brought in their finished state into the packing-room?

Ans. They were packed up and sent away to market, to customers.

(Record, p. 263, 264.)

GEORGE H. SARGENT.

Int. 14. Look at the exhibit marked "Art Casting No. 1," and tell us what you know, if anything, about articles of that style of finish?

Ans. We had those there on sale.

Int. 15. At what locality were you when you had those articles like "Art Casting No. 1," on sale?

Ans. 85 Beekman St.

Int. 16. When did you first begin to carry on your business at 85 Beekman St.?

Ans. In the spring of 1854.

(Record, p. 268.)

NEWTON W. PERKINS.

Int. 14. Look at Defendants' Exhibit "Art Casting No. 1," and "Art Casting No. 2," and say if you ever saw articles like those in pattern, in color, and in finish, during the time that you were employed in the packing-room of the factory at New Britain?

Ans. I did see these.

Int. 15. What was done with them after they came into the packing-room?

Ans. They were packed and sent away.

(Record, p. 271.)

X-Int. 24. How does the surface on Complainant's Exhibit "L" differ from that on "Art Casting No. 1?"

Ans. Well, I should say on Exhibit "L" it was japanned; on this—referring to "Art Casting No. 1"—I should say it was a linseed oil finish, baked on it at a high heat.

(Record, p. 272.)

II.

Another exhibit put in evidence by the defendants is Brocksieper's Picture Frame.

F. W. BROCKSIEPER.

Int. 22. Have you any recollection, while you were in the employment of Peck & Walter, or their successors, at New Britain, of receiving from the old country a picture; and, if so, when was it, and whose was it?

Ans. I received my father's picture, a photograph on glass, between 1853 and 1854—about that time.

Int. 23. Did you make a frame for that picture?

Ans. I did.

Int. 24. Will you please describe in detail the process you used for ornamenting that frame, if it was ornamented?

Ans. It was a cast-iron frame which I had cast smooth and clean by the process of facing. I then cleaned the casting and polished the high edges or prominent parts with sand-paper; then I sized it with the mixture I have described. I put on the sizing with a stiff brush, then baked it over a blacksmith's forge until it attained the color desired, then I sized it over again, let it dry sufficiently by the air, and covered the prominent parts with copper bronze.

Int. 25. You say you made the frame for that picture; was it used sor that purpose; and, if so, for what length of time?

Ans. After the frame was made, I fastened the picture of my father in it, and kept it in my parlor room, suspended on the wall, for a period of about ten years.

Int. 26. Is that frame still in existence?

Ans. It is.

Int 27. If you can, please produce it?

Ans. There is the frame.

(Record, p. 170, 171)

X-Int. 88. How do you fix the date when the "Brocksieper picture frame" was made?

Ans. Between fifty-three and fifty-four I received my father's picture; I remembering the time, being about five years I haven't had no news from home, and soon after the picture arrived I procured the frame, the photograph being on glass, and would not be very well to hang up in the front

room without a frame to put a glass into so that I could hang it up.

X-Int. 89. How do you know that 1853 or 1854 was the year in which you received the picture and made the frame. Do you remember that to be the fact, or have you any other means of fixing the date?

Ans. The only means I have being about that time, I can't be positive about the year or date, was that I hadn't heard from home for about five years.

(Record, p. 179.)

X-Int. 155. To return to the subject of the "Brocksieper Picture Frame," referred to in answer to X-Int. 101; after applying the size to the frame, what did you do next?

Ans. Heated it over a fire until the required color was obtained.

X-Int. 156. What sort of a fire?

Ans. Blacksmith's forge.

X-Int. 157. How was the forge heated? What sort of a fire?

Ans. Coal fire, heated with a pair of wind bellows. It was common soft coal, after the gas was burned out. We held the articles on top of the fire.

X-Int. 158. What do you mean by the "required color?"

Ans. Oxydizing the metal to a yellow color.

X-Int. 159. How near to the fire did you hold the frame?

Ans. It was immaterial. We held it sometimes right on the coal, sometimes a little distance off, a few inches, depending a good deal on the heat of the fire.

X-Int. 160. With what instrument did you hold it?

Ans. Generally with a blacksmith's tongs. ' But I have used, on other occasions, a piece of sheet iron or a bent iron wire, so that I could lay the article on it

X-Int. 161. How long did you heat the frame before attaining the "required color?"

Ans. It depended a good deal on the heat of the fire, generally about four or five minutes.

X-Int. 162. Where was this "required color" obtained? On what part of the frame?

Ans. The required color was obtained all over the frame, but the lower part of the frame, what was not oiled, having a plain surface, would show a straw color, as near as I could obtain it. That is what I called the required heat.

X-Int. 165. Has the surface of the picture frame been modified by any treatment, since the close of the operation you have described, either by you or any other person?

Ans. No, sir.

X-Int. 166. Has it been in your custody ever since?

Ans. It has, until I delivered it to the Court.

(Record, p. 186.)

JOHN C. HOECKH.

Int. 62. At the time that you were in New Britain, and before you left in 1858, were you in the habit of visiting Mr. Brocksieper's house?

Ans. Yes, sir.

Int. 63. What occasion had you to go there?

Ans. I boarded there.

Int. 64. Do you remember a picture of any of his relations that was in the house?

Ans. Yes, sir.

Int. 65. Describe it, and where it was located?

Ans. The picture was that of his father, located in front, or sitting-room—front room.

Int. 66. What kind of a frame did it have; I mean what was the material?

Ans. It was a square frame, iron castings.

Int. 67. Look at the Exhibit now shown you, marked "Brocksieper's Picture Frame," and say how far, according to your recollection, it corresponds with the pattern and general appearance of the picture frame referred to by you in your last answer?

Ans. Same as frame I now hold in my possession.

(Record, p. 218.)

Mr. Earle, the Defendants' expert, testified:

"Judging from the appearance of the Exhibit "Brocksieper Picture Frame," and from the fact that there is really no coating upon the surface, except that produced by oxydation, and that coating was of an oily nature, as thin as possible to apply with a stiff brush, I have no hesitation in saying that the said exhibit was first treated by a process substantially that described in the Tucker re-issue, and the copper bronze subsequently applied to the more prominent points."

(Record, p. 283.)

III.

Another exhibit put in evidence by the defendants, are "English Finish Carriage Knobs."

As to these exhibits, Mr. Tucker says, on page 38, Record:

"Assuming that these knobs had the scale taken off, and were then treated to a thin coating of oil, as described in the patent, as they appear to be—some of them—and then heated until the oil and the color of the iron appeared simultaneously, and then still further treated with a thin coat of oil, and re-treated to the color of black as appears on these darkest colored knobs, I consider would be practising the patented process, and producing the patented result."

PURMONT BRADFORD.

"Int. 12. Under what name was the business conducted at New Britain, when Mr. Sargent came there in 1856?

Ans. Peck & Walter Mfg. Co.

Int. 13. Was the article of carriage knobs among the manufactures of the company at the time?

Ans. They were.

Int. 14. If any change was made in the manufacture of this article, after Mr. Sargent came to New Britain, state when that change was made, and in what it consisted?

Ans. Some time after he came there, when I was in the foundry, he came to me and wished I would see if I could make him some carriage knobs equal to the English finish. I tried by varnishing them, but they were not as good. Mr. Sargent got me some English varnish, and wished I would try that; tried some of it and found it was too thick, and didn't get the color I wanted. I thinned it down with spirits of turpentine, done them over very carefully, very light, baked them and they was brownish color, gave them another coat, baked them and they were darker still, gave them a third coat, and baked them and they seemed to be what he wanted.

Int. 15. What, if any thing, was done to these knobs

after they were cast, and before the application of the first coating of this thinned varnish?

Ans. They were put into a lathe and polished.

Int. 16. You speak of the varnish as English varnish; was there any additional name by which it was known?

Ans. It was called brown varnish; English brown varnish.

Int. 17. What was the character of these coatings as to thickness?

Ans. Made each coating very thin.

Int. 18. I call your attention to Exhibits, which have been put in evidence by the defendants, marked respectively 'O O,' 'A B,' 'C D,' and 'E F.' I also call your attention to the differences between the four outside and the six inside knobs, on the last three of those Exhibits, and having reference to your last answer describing the mode of making English finish knobs, tell us, in detail, what those Exhibits respectively represent, beginning with the Exhibits 'O O.'

Ans. 'O O' represents the knobs as they appeared before there was any varnish put on them. They are a little rusty now, not quite as bright as they were. They were done last April. 'A B,' the six middle knobs, had one coating of English brown varnish, and was baked about forty minutes at 430° Fahrenheit. The four outside knobs had nothing done to them except baked—had no varnish put on them. 'C D' and 'E F' were done the same as 'A B,' then the six middle knobs had another coating of varnish, and were baked in the oven together at about 510° Fahrenheit; the outside knobs had nothing put on them; 'E F,' the six middle knobs, were coated the third time and baked. I don't remember how long they were baked; I have a memorandum made at the time, (witness refers to the memorandum,) my memorandum says forty-five minutes at 530° Fahrenheit.

Int. 19. How were carriage knobs, manufactured by the Peck & Walter Co., made and finished prior to Mr. Sargent's coming to New Britain?

Ans. They were rolled, japanned. I think they made some polished and japanned.

Int. 20. What kind of japan was employed?

Ans. Asphaltum japan.

Int. 21. How did the aggregate of these three coatings of English brown varnish, which you have described as being used in making and finishing the English finished knobs, compare in thickness after being subjected to these several bakings, with the single coat on the knob japanned with the common asphaltum japan?

Ans. I should say it was less than half the thickness.

(Record, p. 195, 196.)

X-Int. 114. What advantage had the English finish knobs over the common knobs?

Ans. Coating on them was thin, and as they went to drive them in did not flake off. They were tough.

(Record, p. 204.)

X-Int. 187. Do you know anything about the price paid contractors for making English finish knobs at New Britain? How does it compare with that paid for the ordinary japanning of such knobs?

Ans. I do not remember the price. I think it was considerable more.

(Record, p. 210.)

F. W. BROCKSIEPER.

Int. 46. Please look at the six inside knobs on the plate

now shown you, marked defendant's exhibit "E F.," and say whether you recognize them as being correct representations of articles made in New Britain in 1859, and, if so, what they are called.

Ans. They are correct representations of a carriage knob which was called English finish carriage knob.

(Defendants' counsel puts the same in evidence and they are marked as above.)

Int. 47. Do you know by whom or under whose superintendence or direction those English finish carriage knobs were made?

Ans. By Purmont Bradford. The first one I see was himself making them, and he superintended the making of them afterwards to the best of my knowledge.

Int. 48. Will you please describe the process which you saw him use in their manufacture, and, if you desire, you may refer to any exhibits which are on the table in explanation?

Ans. After the knobs were cast they were rolled in a rolling barrel, then turned in a lathe with a file and emery paper as shown in the exhibit, defendants' exhibit OO (which the defendant puts in evidence), the next process was to cover the so finished knobs with a varnish which they called English japan or English varnish, then they were put into sheet iron with holes in and subjected to the heat of a furnace or kiln which give them the color shown in defendants' exhibit A B, (which defendants' counsel puts in evidence), then they were covered with a new coat of English japan and baked again, which made the article look like defendants' Exhibit C D., (which defendants' counsel puts in evidence), which give the knobs a blue black. Then another

light coat of English japan was put on and baked again, which made the knobs look like defendants' Exhibit E F., jet black.

(Record, p. 173.)

Int. 55. Were any portions of the knobs, when in the oven, uncovered with this varnish, and if so, state the effect upon the uncovered portions at each successive heating?

Ans. The bottom of the knob where the nail is cast on and is placed on the iron plate was uncovered and showed at the first heat a dark straw color, as in Exhibit "A B" the uncovered knobs. In the second heating it showed a blue, like Exhibit C D uncovered knob. The third heat would show a dark blue, the same as uncovered knobs on Exhibit E F.

(Record, p. 174.)

JOSEPH B. SARGENT.

Int. 14. Were carriage knobs among the articles manufactured by the New Btitian concern, which you had been accustomed to receive from them and sell in New York, prior to your going to New Britian to take charge of the concern?

Ans. They were.

Int. 15. Was any change made in the mode of manufacturing carriage knobs after you went to New Britian, as distinguished from the way in which they had been previously made?

Ans. We continued to make them in the old way and besides finished them in a different way.

Int. 16. How soon after you went to New Britian, did

you begin to have them finished in a different way from the one previously adopted?

Ans. I can't give the exact time, but it was immediately or very soon.

Int. 17. Will you please describe, in detail, this new process of finishing carriage knobs to which you refer?

Ans. We took the castings, after they came from the rolling barrels connected with the iron foundry, and put each one separately into a rapidly revolving lathe and smoothed off the surface with iron files, using usually rather fine files and somewhat worn; we then coated them, covered them, with a thin coating of English brown japan, which was usually or always put on with a brush, after having been well thinned down with spirits of turpentine, we then baked them standing in sheet-iron plates; these plates, with the knobs in, were put across iron bars in the baking ovens and subjected to a high heat, which gave them a straw color, or brown, they were then taken out, still standing on the sheet iron, and had another coat of the thin varnish brushed over them and then subjected to another high heat, which, if sufficiently hot, turned them black; they were often subjected to a third heat, and I think, to a third varnishing to make them black, and sometimes, when the heat was not sufficient, and they were purple in color, they have had to undergo a part of them—still a further heat; but I think the usual course was to give them two bakings only.

Int. 18. Was there any part of the knob, thus put on to the sheet-iron plates, while being baked, uncovered or uncoated by the varnish?

Ans. I think the rule was not to cover the bottom at all the under side.

Int. 19. What effect, if any, had the heat at which the knobs were subjected on tha part of the knob not covered by the varnish?

Ans. My recollection is that the underside of the knob was subjected to such a high heat as to have a purplish tinge or blush, or it required three bakings. Then the heat gave it a straw color, they required three bakings.

Int. 20. What name was given to knobs finished in this way?

Ans. English finish knobs.

Int. 21. Were they sold as such in the market?

Ans. They were.

Int. 22. How did the aggregate thickness of these several varnish coatings on the knobs, after they were baked, compare with the ordinary thickness of coating on the knobs when made in the old way?

Ans. Made in the old way, one could take a knife and cut off the japan; made in the new way, there was no material coating to cut off.

Int. 23. What advantage, if any, had the English finish knob over the knob japanned with asphaltum mixture?

Ans. The knob japanned in the old way with asphaltum blacking was easily marred on the head by driving into the wood of the carriage-bow and clinching it, making the japan sometimes flake off, while in the English knob, that we made, there was no objection of that nature, the coloring or blacking having no thickness in substance.

(Record, p. 226, 227.)

X-Int. 155. Please describe the substance which you have designated as 'English Brown Japan.'

Ans. It is a brown varnish known as English varnish, lock-varnish sometimes among lockmakers, composed, as I have always understood, of boiled linseed oil, spirits of turpentine, with a little Zanzibar gum.

X-Int. 156. Are you positive that the material used by

you, in your experiments, conducted by Mr. Bradford, was not a fine, imported japan covered with pigments, commonly known as English japan, by which you produced the black finish on the carriage-knobs?

Ans. I am very positive; entirely so.

(Record, p. 247.)

X-Int. 191. I call your attention to pages 118 and 119, (price-list, 1861), where carriage-knobs are described, and to the sentence at the top of the page, 'japanned with English Finish, and the foot-note at the bottom of the page, 'The japanned English Finish are all turned smooth in a lathe and japanned with the best English japan,' please explain those entries.

Ans. The japanned with English finish were all turned smooth in a lathe, then coated with a thin coat of English brown varnish, trimmed with spirits of turpentine, and set in a baking-kiln, on plates of sheet-iron, and baked at a very high heat until they become straw color to a dark brown, they were then taken out of the kiln and treated as before, and baked again as before, which usually made them black, sometimes only a bluish-purple, if the heat was not sufficiently high, in which case they were subjected to another process as before, making a third baking and coating, which made them black. That price-list of carriage-knobs was issued to govern the carriage-hardware trade, and if we had said they were colored, or japanned, with English brown varnish, it would have appeared as an absurdity to that trade. They would not have known what we meant by japanned carriage-knobs, colored, or japanned, with English brown varnish, and English brown varnish, among hardware manufaturers, is called either English lock-varnish, or English japan, more generally than it is called English brown

varnish. I mean that the trade would not have understood that black japanned knobs could be produced by a brown varnish. If we had said so in our first list, they would have expected a brown knob."

(Record, p. 254.)

IV.

Another class of exhibits put in evidence by defendants are coat and hat-hooks, jamb-hooks and match-boxes, marked:

GH and H'.
JJ' and L.
Match-Box.

It is admitted that all these exhibits have been through the Tucker process.

"X-Int. 30. Is defendant's exhibit Art Casting, No. 1, within re-issued Letters Patent, No. 2,356, and finished by the process described in No. 2,355?

Ans. Undoubtedly this is Tucker bronze.

(Record, p. 37.)

X-Int. 35. Is the same true of defendant's exhibit Match-Box?

(The same being two match-boxes separately tagged.)

Ans. Yes.

X-Int. 36. Is the same true of defendant's exhibits, G, H, and H²?

Ans. Yes.

X-Int. 37. And the same is true of defendant's exhibit J, J², and L, these, however, having had a further finish by tipping their edges with bronze powder?

Ans. Yes; all that you have called my attention to in this question have been through the Tucker process, in my opinion."

(Tucker's testimony, Record, p. 38.)

JOHN RUFF.

"Int. 53. Now, to go back to the interval between your return to the Peck & Walter Mfg. Co., in the spring of 1857, and the time when Mr. Brocksieper left in 1859, did you see, during that period, any other articles of manufacture, which Mr. Brocksieper had colored in imitation of bronze, and, if so, what were they?

Ans. I did see him coloring coat and hat-hooks, what we call Nos. 5 and 6, single jamb-hooks and double jamb-hooks; saw some cupboard-catches what he bronzed.

Int. 55. Look at the exhibits marked Defendant's Exhibit "H," "H²," and "G," and say how they compare in appearance and color and finish with the articles Mr. Brocksieper showed you in 1858?

Ans. As far as I can remember, they look exactly like them that he done at that time.

(Record, p. 147.)

X-Int. 135. Were goods finished by Mr. Brocksieper,

and resembling, in character, and appearance, and finish, "Art Castings, Nos. 1 and 2," made and sold by Sargent's predecessors in New Britain? If so, under what name as to finish, and what articles?

Ans. I cannot tell what they done with the goods what was made. I can recollect that Mr. Brobksieper finished coat and hat-hooks, Nos. 5 and 6, and single and double jamb-hooks that way, but we called this bronzing, among the workmen, "antique bronze." Under what name the company sold it, I do not know, or if they sold it at all; I don't know anything about it, because I have nothing to do with the selling part, or sending away goods.

X-Int. 136. In what respect do the Defendant's Exhibits "H," "G," and "H'," resemble the coat and hat-hooks which you have testified Brocksieper showed to you at New Britain?

Ans. As far as my recollection goes, they looked like these samples standing here.

(Record, p. 156.)

X-Int. 151. Did Brocksieper come, in 1858, to show you a box of goods finished like those you have testified to as made in 1853 as novelties?

Ans. He showed me a box in that year of finished goods —coat and hat hooks—and asked me how I liked them. I told him I thought they looked pretty, and done the same way as he done the horse and the pictures. We used to call "Art Casting Nos. 1 and 2 Pictures. Brocksieper told me (objected to as incompetent) they were done the same way.

(Record, p. 157.)

F. W. BROCKSIEPER.

Int. 14. Please look at the exhibits now shown you, marked "Defendants' Exhibits H, H² and G, and say whether or not they correctly represent hat hooks made by you during the period you have named, in their appearance, color and ornamentation?

(Question objected to as leading.)

Ans. They are a correct copy of those that I made at that time, in appearance and finish.

Int. 15. You say that these articles, after being covered with size, were baked over a forge to begin with, and afterwards, in after times, in a kiln until they had a brown color. Restricting your answer to the period when they were baked in a kiln, will you please describe, in detail, from the beginning to the end, the process which you used?

Ans. From the year 1849, or about that time, until about 1856 or 1857, all articles bronzed with oil or size, I baked over a forge; after that time we had a kiln, fixed in such manner by Mr. Bradford, that we could bake these articles in the kiln, and a few of those articles were baked in the remodeled kiln of Mr. Bradford's. In 1857, or about that time, we had a kiln built under the direction of the boss painter, Mr. Gebhardt, with porticular construction for high heat. All those goods, from that time, after the Gebhardt kiln was in working order, were baked in that kiln, with the exception of a few samples and single articles which were done over a forge.

We had the castings cast with a facing so as to come out out of the sand very nearly entirely free of sand; then those castings rolled, drilled and counter-sunk, the highest parts,

or the prominent parts of the ornaments, brightened with sand paper or emery paper, brushed clean from dust, then sized and baked. In order to handle them easy, those hooks, we had them fastened on a block with a spring, and sized them in quantities, as they were ordered, let them stand long enough so that the size would not stick to the fingers, then we put them in pans, or on hooks, and put them in the kiln to bake.

Int. 16. You say you sized those castings after they were brightened. Please explain what you mean by that term?

Ans. Sizing was covering the castings with a mixture of equal parts turpentine, copal varnish and linseed oil.

Int. 17. How was the mixture applied to the casting?

Ans. With a stiff, fine brush, very thin.

Int. 18. Were there any means of determining, when you began to use the Gebhardt kiln, the degree of heat to which the baking was carried; and, if so, what means and how high was the heat carried up?

Ans. We had a thermometer fastened inside the kiln, and covered with glass, so we could read the degrees from the outside, and employed, if I am correct, 420° Fahr.

Int. 19. What was your object in carrying the heat up to so high a degree?

Ans. We had to oxydize the metal to get the desired color, and it requires that amount of heat to oxydize the iron?

Int. 20. What do you mean by oxydizing the surface of the iron?

Ans. To give the iron a straw color, or a blue color, which is called oxydizing it.

Int. 21. Which required the highest degree of heat on the unoiled surface, that which produced the straw color, or the blue color?

Ans. The blue color.

(Record, p. 169, 170)

Int. 57. How did the degree of heat used by Mr. Bradford for coloring the English finish carriage knob compare with the degree of heat which you used on the coat and hat hooks and other similar articles?

Ans. I could bronze my antique with 420° Fahrenheit and over, whereas Bradford used a considerable greater degree of heat, I should think 550° Fahrenheit was required, although the first coat of Bradford's wouldn't require near as much heat.

Int. 58. You have described Bradford's process as calling for three successive bakings; what was the number required for your antique bronze?

Ans. One baking.

Int. 59. You have described as part of the process of making your antique bronze, brightening the prominent parts with sand paper or emery paper before applying the size and heat; what was the object in this?

Ans. The object was to give it an antique appearance by the contrast of the exposed prominent points and those parts which lay in the background.

Int. 60. Why did you call it antique bronze?

Ans. Because it had the appearance of old, dark bronze statuary.

(Record, p. 175.)

X-Int. 125. What name was applied to the finish like that on "G," "H" and "H'," Defendants' Exhibit, by the Peck & Walter Co.?

Ans. Antique bronze.

X-Int. 126. Enumerate the articles to which the finish

known as antique bronze was applied by the Peck & Walter Co.?

Ans. I cannot tell all the articles to which the name antique was applied. I can state all the articles to which I myself applied the name antique bronze, which were: coat and hat hooks, jamb hooks, cupboard catches, match boxes, looking-glass stands, ornaments of different descriptions.

X-Int. 127. What proportion of goods made by the Peck & Walter Mfg. Co., of the styles enumerated by you in your last answer, were ornamented with antique bronze, while you were in the employ of said company?

Ans. The proportion was not very large, being a new article in market, and me not staying long enough in the concern to see it thoroughly developed.

X-Int. 128. Was the demand for such articles, ornamented with bronze antique, an increasing one?

Ans. It seemed so, for I had to repeat several batches.

X-Int. 129. In what year of your stay with the Peck & Walter Mfg. Co., did the company make the largest amount of these goods ornamented with bronze antique?

Ans. In the last year of my stay.

(Record, p. 183.)

X-Int. 238. In using the Gebhardt kiln, did you heat it before the articles of antique bronze were put in to bake?

Ans. I did.

X-Int. 239. How hot was it usually when the articles were put in?

Ans. Calculated to have it between 400° and 500° Fahr.

X-Int. 240. Did you keep it at that temperature while the baking was going on?

Ans. We calculated to keep it about 440° Fahr.

X-Int. 241. How long did the baking of the antique bronze take in this oven and at this heat?

Ans. Depended on how many degrees it was. At 500° Fahr. it would not take but a short time; at 440° Fahr. to the best of my knowledge it took twenty minutes, more or less.

(Record, p. 194.)

PURMONT BRADFORD.

Int. 45. In using the yard kiln, had you any means of testing the degree of heat to which the articles were subjected?

Ans. None, except the color of the iron.

Int. 46. How did the color of the iron enable you to fix the degree of heat to which the articles had been subjected?

Ans. My experience has taught me that iron, which was heated, would change its color; at a certain heat it would be a straw color; at a higher heat it would be a light blue; still higher heat, it would be a dark blue.

Int. 47. When the new kiln, which we have called the Gebhardt kiln, was put up, in 1857, were there any means employed of testing the degree of heat to which the articles were subjected in that kiln?

Ans. I think they had a thermometer in there. I recollect Mr. Sargent's getting him one.

Int. 48. To whom do you refer when you say you recollect Mr. Sargent's getting "him" a thermometer?

Ans. Mr. Gebhardt.

Int. 49. Was any use, to your knowledge, made of this kiln by any person other than Mr. Gebhardt?

Ans. Mr. Brocksieper used it.

Int. 50. Do you mean Mr. F. W. Brocksieper, who has testified as a witness in this cause?

Ans. I do.

Int. 51. For what purpose did Mr. Brocksieper use this kiln?

Ans. He had the general charge of ornamenting hardware, and used it for that purpose.

Int. 52. Will you please mention some of the articles, for the ornamenting of which, Mr. Brocksieper used this kiln, between the time of its construction and the time of his leaving the company, which he says was in 1859?

Ans. The work he used to finish were cupboard catches, sash fasts, coat and hat hooks, jamb hooks, looking-glass frames, and a great variety of ornamental work, which I couldn't describe now.

Int. 53. Did you see and examine coat and hat hooks, ornamented by Mr. Brocksieper by the use of the kiln, after they were removed from the kiln?

Ans. I did when they came to the packing-room.

Int. 54. Will you please look at the Defendants' Exhibits "G," "H" and "H'," and say to what extent they correctly represent the character, and the color and finish of the articles so ornamented, at that time, by Mr. Brocksieper?

Ans. I should say they resembled them very much.

Int. 55. Do you remember what name was given to the ornamentation of articles like Exhibits just shown you?

Ans. Antique.

(Record, p. 198, 199.)

JOSEPH B. SARGENT.

Int. 59. You say, that in the Gebhardt kiln, a thermometer was placed capable of registering up to 600° Fahr. Were there any articles of builders' hardware manufactured

by your company at New Britain, and while Mr. Brocksieper remained in its employ, in the making of which a high degree of heat was required?

Ans. There were.

Int. 60. Will you please enumerate them, or some of them?

Ans. There were coat and hat hooks, sash fasteners, jamb hooks, cupboard catches, and I remember some turn buttons that were made.

Int. 61. For what purpose, speaking generally, were these articles subjected to this high degree of heat?

Ans. To give them a bronze color in connection with varnish or size, as it was called, which was brushed over them before baking them.

Int. 62. What name was given to this kind of ornamentation at that time?

Ans. Antique bronze.

Int. 63. In order that we may understand more clearly at what stage of the process of ornamentation this high degree of heat was applied, will you please describe, in detail, the process of ornamenting the goods with the finish you called antique bronze?

Ans. The castings were made in the iron foundry, and were cast in moulds of sand, in which, or on which, was a facing sand composed generally, I think, of finely ground sea coal, as it was called, which, I suppose, is common anthracite coal. By using this facing on the moulds, the castings required little or no tumbling to get the sand off. After the sand was cleaned from the casting, either by gentle tumbling with other small castings, or brushed by wire brushes to get the sand out of the more sunken parts, the more prominent parts of the castings polished with sandpaper or emery-paper, they were then covered with a thin

coat of size, as we called it, which was composed of varnish, with spirits of turpentine to thin it, and, I believe, a little linseed oil. A thin coat of this was put upon the article, and, in case of the coat and hat hooks and jamb hooks, after they were fastened on a little block, held on it by a little wire spring, I forget the exact form of it, they were then, after drying a little, as I believe, dried a little, enough to handle them, they were put into the kiln and subjected to a high heat, such a heat as often turned the under-side of the casting, where the gate had been ground off, a purplish blue, but usually to straw color, I think. That completed the process of making what we called antique bronze.

Int. 64. Was any other or further work in ornamentation done in connection with the goods known as antique bronze, upon any portion of the product of the manufacture of the company?

Ans A part of them were taken and had this same sizing put upon the prominent points; they were then set aside to dry partially, as I remember, just so the finger would adhere a little to the varnish, when touched, being called sticky, when they had on the varnished places or high points, a little gold colored bronze touched on them.

Int. 65. What name was given to the goods to which this additional ornamentation was applied?

Ans. We used to call them "antique and gold" bronze, and, I think, sometimes in speaking of them, they were called "dark and gold."

Int. 66. Will you please look at the Exhibits on the table one marked "G," "H," and "H'," one marked "J," "J'," and "L," and two marked "Brocksieper Sash Fastener," and say how far they correctly represent the articles made by the Peck & Walter Mfg. Co., between the time of your going to New Britian, and Mr. Brocksieper's leaving

the employment of the Company. Referring, if you please, to each Exhibit by itself?

Ans. Exhibits "G," "H," "H²," represent correctly the antique bronze hat hooks and jam hooks made by the Company. Exhibits "L," "J," "J²," represents the "dark and gold" or "antique and gold" bronze, as we most generally call them, made by the Company, except that some of the gold bronze on the higher points seems to have been worn off by handling. The sash fasteners marked "Brocksieper Sash Fasteners," correctly represent the sash fasteners made by Peck & Walter Mfg. Co., or J. B. Sargent & Co., during that time.

Int. 67. After these goods, corresponding with these Exhibits were manufactured, what was done with them?

Ans. They were packed up in the packing-room and sent to market when wanted.

Int. 68. How early did you, yourself, see in the market for sale, coat and hat hooks, and jamb hooks, like Exhibit "G," "H," and "H²," and "J," "J²," and "L"?

Ans. Immediately after they were made; as early as 1857, I think, without doubt.

Int. 69. And where did you so see them?

Ans. I have carried samples of them myself to make sales with, and we had them in the store, in New York, on the shelves, and samples on the sample boards there.

In the latter part of the time our manufacturing business was carried on at New Britian, my own personal attention was devoted to the general management of the business and to its finances and, very considerably to the manufacturing business in Massachusetts and New Hampshire, in which I was interested; but up to 1859 and 1860 I devoted my time very considerably to our manufacturing at New Britian (beginning at the time I went there to take charge of the

business) which was till Mr. Brocksieper left in about 1859, and the statements concerning the bronzing of articles as stated by Mr. Brocksieper in his affidavit I am sure are true, and I saw him, during the time he was employed by the Company in New Britian, do the work, and perfectly well remember his showing me a lot of the antique bronzed coat and hat hooks immediately after they had been taken out of the baking kiln, which were bronzed too dark to suit him. They were heated in Gebhardt kiln, and were lying on the shelf in the wooden building on the side of the building toward the main factory; he showed me the backs where they were not sized or varnished, and they were colored purple and blue. He showed me some of a previous batch, which were straw color on the back, and he told me those heated to show a straw color on the back gave the color for the hook that he wanted to get.

(So much of the answer as follows 'and perfectly well remember,' objected to as irresponsive.)

(Record, p. 230–232.)

J. B. SARGENT RE-CALLED.

Int. 1. Have you read over your testimony as above taken down by the magistrate?

Ans. I have.

Int. 2. If you have discovered any clerical error therein, please point it out?

Ans. I am asked by X-Int. 188: 'Are you positive that the finish, described as bronze antique on page 20, as applied to two patterns of match safes, was not a finish done with

green powder or paint without high heat?' and I am made to say in the answer: 'I am not positive that they were not bronzed in that way.' I answered the question by saying: 'I am positive that they were not bronzed in that way.'

Int. 3. Did you discover that mistake from your own reading of the deposition, or was it pointed out to you by anybody else?

Ans. I discovered the error myself in reading the testimony.

No Cross-Interrogatories.

(Record, p. 260.)

GEORGE H. SARGENT.

Int. 9. At what locality in the city of New York did your firm carry on business, during the three or four years after Mr. J. B. Sargent removed to New Britain?

Ans. 85 Beekman street.

Int. 10. State some of the different kinds or classes of builders' hardware received by you, during that period, as selling agents for the Peck & Walter Mfg. Co., or their successors?

Ans. Well, cupboard catches, coat and hat hooks, and wardrobe hooks, sash fasteners and shutter knobs.

Int. 11. Look at the exhibits on the table, and say whether you recognize any of them as exemplifying in style, color and finish, any of the articles mentioned by you in your last answer as having been received from New Britain, and sold by your firm at No. 85 Beekman street, within three or four years succeeding the time when Mr. Sargent removed to New Britain?

Ans. Yes; we had them all.

(The witness makes the above answer after looking at Defendants' Exhibits 'L', 'J,' 'J²;' Defendants' Exhibits 'H,' 'H²,' 'G;' Defendauts' Exhibit, Brocksieper Sash Fastener.')

Int. 12. Do you remember what name was given at that time to these articles or any of them?

Ans. We used to call them antique bronze, and antique and gold bronze.

Int. 13. What became of these goods after they were consigned to you from New Britain?

Ans. We sold them.

(Record, p. 267, 268.)

X-Int. 31. Are you able to state the names of any concerns to whom you sold goods like in pattern Defendants' Exhibits "L," "J," "J²," "H," "H²," "G," and Defendants' Exhibit "Brocksieper's Sash Fasteners," and Defendants' Exhibit "Art Casting No. 1;" if so, please give their names and places of business?

Ans. Well, in 1858, I think it was, I sold a lot of goods like exhibit "H," coat and hat hooks, to a man named M. Devoy, for a North river steamboat. With regard to the others, I don't remember any special sales, but they were sampled and sold in various small quantities, to various parties, whose names I don't remember now. M. Devoy did live in New York; his place of business was in New York.

(Record, p. 269.)

NEWTON W. PERKINS.

Int. 6. What was your employment in New Britain during 1857, and up to the time you enlisted, in 1861?

Ans. I was in the packing department, a packer, for J. B. Sargent, it was then.

Int. 7. Who had charge during that period of the factory, in the packing room of which you were employed?

Ans. J. B. Sargent.

Int. 8. Was builders' hardware among the kinds or classes of manufacture which came into the packing room during that time?

Ans. It was.

Int. 9. Were any of these articles of builders' hardware, that came into the packing room, finished or ornamented in imitation of bronze, or what was known or called bronze goods?

Ans. They were.

Int. 10. Was there more than one kind of so-called bronze goods?

Ans. Yes.

Int. 11. How many kinds were there, and how were they called or known; by what name?

Ans. Well, there was the black and gold bronze, French bronze, antique bronze, dark bronze, dark and gold bronze —antique and gold bronze, perhaps we called it.

Int. 12. Please look at the exhibits on the table and say whether you recognize among them any articles as identical in style and finish with the goods which you then knew under the name of antique bronze, or under the name of dark and gold bronze?

Ans. Well, these are pretty nearly alike, these two things you have here, (indicating Defendants' Exhibits, "H," "H^1,"

"G" and "J," "J²," "L,") but I should call that the antique bronze, (witness refers to Defendants' Exhibit marked "H," "H²" and "G") and this Exhibit I should call the antique and gold, (referring to Defendants' Exhibit "J," "J²" and "L). It is pretty hard to distinguish these two apart (referring to "H," "H²," "G" and "J," "J²" and "L," respectively).

Int. 13. What was done with these 'antique bronze' and 'dark and gold bronze' goods after they came into the packing room?

Ans. They were packed up and sent away as regular merchandise.

(Record, p. 270, 271.)

THOMAS J. ATKINS.

Int. 15. Look at the exhibits on the table, and say whether you recognize any of these articles as correctly representing in style and finish, the articles you have enumerated as being on the sample board for sale, and sold by you while in the employment of Sargent & Co., or their predecessors, in New York, during the period you have named, from 1857 to 1861?

Ans. Yes, sir.

Int. 16. Please designate which you so recognize as being on the sample boards?

Ans. I recognize Defendants' Exhibit 'H,' 'H²,' and 'G;' and I also recognize Defendants' Exhibit 'J,' 'J²,' 'L.'

Int. 17. Do you recognize either of those Exhibits as correctly representing the style you have referred to as known, in the character of their color and finish, as antique bronze?

Ans. Yes, sir; I recognize this one as the antique (referring to defendants' Exhibit 'H,' 'H^2,' and 'G.')

(Record, p. 273.)

Int. 18. Do you recognize either of these Exhibits as correctly representing, in character, style and finish, the articles you mentioned as being known as dark and gold bronze?

Ans. Yes, sir. (Witness refers to Defendants' Exhibit 'J,' 'J^2,' 'L.')

(Record, p. 274.)

V.

The other and last class of Exhibits, put in evidence by the defendants, consists of Check Cancellors, marked:

Canceller A^1, A^2 and A^3.
Canceller B^1, B^2 and B^3.

WILLIAM R. SAWYER.

Int. 2. Where were you employed for some years before the war of 1861?

Ans. J. O. Smith's, in Middletown, Conn.

Int. 3. Did they have a factory at Middletown, in which they carried on business?

Ans. They did.

Int. 4. At what time did your employment at the factory of J. O. Smith & Son begin, and how long did it continue?

Ans. 1856 until 1861.

Int. 5. Is there any circumstance which enables you to fix the time at which you went into their employment, and if so, state it?

Ans. I hired out on the day of election of Buchanan and Fremont, at the Macdonough House, Middletown, to J. O. Smith & Son.

Int. 6. If there is any circumstance which enables you to fix the year at which you left the employment of J. O. Smith & Son, please state that also.

Ans. 1861, when the 4th Connecticut Infantry went, which was afterwards changed to 1st Connecticut Siege Artilery.

Int. 7. Do you mean that you enlisted into that regiment?

Ans. I do.

Int. 8. Have you ever been employed by the firm of J. O. Smith & Son, or their successors, since you enlisted?

Ans. No, sir.

Int. 9. What was the business of J. O. Smith & Son, while you were in their employment?

Ans. Stationers' hardware. Manufacturing stationers' hardware.

Int. 10. Will you enumerate some of the articles made by them, in that class of manufacture?

Ans. Bill-files, pen-racks with the base holding ink-stands, desk-weights, check-cancellers.

Int. 11. What was the nature of your employment, beginning in 1856, to the time you enlisted in 1861?

Ans. I had a contract on the stationers' hardware.

Int. 12. When you first went into their employment, what were the articles for which you contracted; please enumerate them?

Ans. Pen-racks, desk-weights, and bill-files.

Int. 13. If there were any other articles of stationers'

hardware, the manufacture of which the firm began after you entered their employment, say what they were?

Ans. Check-cancellers.

Int. 14. Will you please state how soon after you entered the employment of the firm, they began to make check-cancellers, and state, as fully as you can, the circumstances under which the manufacture was begun?

Ans. Commenced in 1857. J. O. Smith bought a steel check-canceller, and had some iron castings got out of the same pattern, which I filed up the gateways, polished them to a high color, and heated them over a forge to obtain the color; the color being mixed straw and blue; the color not being uniform, Marshall Graves told me to put on a light coat of oil, which would bring the color of the original sample, which was a straw color.

(Objected to as incompetent.)

Int. 15. What means did you employ to polish them to a high color?

Ans. Emery-wheels.

Int. 16. How many edges did the cancellers have?

Ans. Three.

Int. 17. What was the character of these edges, and how produced?

Ans. Sharp; produced by grinding them.

Int. 18. About how long, after you commenced the manufacture of these cancellers was it, before you had this interview with Mr. Graves, of whom you have spoken?

Ans. It was when I was first making them; trying to get the color; experimenting on them.

Int. 19. At that time, you say, you found the color was not uniform, being mixed straw and blue; what, if any, coat-

ing was used upon the cancellers which presented this want of uniformity?

Ans. There was nothing used.

Int. 20. What coating was used after your interview with Mr. Graves?

Ans. Linseed oil.

Int. 21. How was the oil applied?

Ans. With a brush.

Int. 22. What was the character of the coating with reference to its being thick or thin?

Ans. Very thin.

Int. 23. You say that you heated them over a forge to obtain the color; will you please describe how the cancellers were held over the fire?

Ans. On a wire gauze with points running up which went into a hole in the bottom of the canceller.

Int. 24. How long did you continue to use this wire gauze, with points running up, for heating over forge fire?

Ans. Until 1858.

Int. 25. After 1858, what means were employed for heating them?

Ans. I oiled them and took them to Mr. Angevine; then he baked them in a kiln; afterwards he oiled them and baked them himself.

Int. 26. Do you mean that Mr. Angevine coated them with oil and baked them in the kiln before you left in 1861?

Ans. Yes, sir.

Int. 27. About how many kilns were there on the premises occupied by J. O. Smith & Son?

Ans. From ten to twelve.

Int. 28. Will you please describe their construction in a general way, and how they were heated?

Ans. They were sheet-iron kilns, heavy iron doors in

front, bricked up on all sides but the front where the door was, fire underneath the kiln, coal fire, heavy iron plate over the fire, from an inch to an inch and a quarter thick.

Int. 29. How hot did you get the cancellers when you heated them over the forge fire?

Ans. Hot enough to get a straw color.

Int. 30. While they were being thus heated over the forge fire, what were you doing?

Ans. Taking care of my cancellers.

Int. 31. What do you mean by "taking care" of the work?

Ans. Seeing to it that I got the desired color.

Int. 32. Did you leave the work over the forge fire while the cancellers were being heated?

Ans. No, sir.

Int. 33. Were there any occasions when any of the cancellers got a greater degree of heat than you desired?

Ans. There was.

Int. 34. What was the effect which it produced, if any?

Ans. Blue.

Int. 35. Had you any means of knowing the degree of heat used in the kilns by Mr. Angevine, except from the color produced?

Ans. No, sir.

Int. 36. State generally how many of the cencellers you finished, with oil and heat, in the manner you have described. I mean by the use of the forge fire up to 1858.

Ans. That would be impossible for me to tell how many? three, four or five gross.

Int. 37. What became of them after you finished them?

Ans. Sent to the packing room.

Int. 38. Please state, as well as you can, how many cancellers you made in this way, with thin coating of oil, after they began to be baked in the kiln.

Ans. About twenty odd gross.

Int. 39. Up to what period did you continue to make these cancellers for the firm of J. O. Smith & Son?

Ans. As long as I was with them.

Int. 40. Have you recently finished any cancellers in, the same way in which you made them, while in the employment of J. O. Smith & Son?

Ans. Yes, sir.

Int. 41. Where did you finish them; I mean at what shop?

Ans. J. O. Smith's in Middletown.

Int. 42. Did you finish any over a forge fire, in the same way in which you were accustomed to do it before 1858?

Ans. I did.

Int. 43. Have you those articles with you?

Ans. I have.

(Witness produces three cancellers and they are put in evidence and marked Defendants' Exhibit "Canceller A^1," "A^2," and "A^3." J. B. Mills, Special Examiner.)

Int. 44. Please look at these Exhibits as they have been marked by the magistrate, and say what they respectively represent, beginning with the Exhibit marked "Canceller A^1."

Ans. "A^1" represents a canceller that was heated over blacksmith's forge without oil; "A^2," represents a canceller oiled and heated over a blacksmith's forge, at the same time as "Canceller A^1;" "Canceller A^3" represents a canceller oiled and heated over a blacksmith's forge, at the same time as "A^1" and "A^2."

Int. 45. Which of these Exhibits, if either, correctly represents the mixture of color of which you have spoken, before you began to use linseed oil?

Ans. "Canceller A^1."

Int. 46. To what extent did the process used by you recently at Middletown, in making "Cancellers A^{2}" and "A^{3}" correspond with the process you formerly used at Middletown, prior to 1858?

Ans. Exactly the same thing.

Int. 47. How were these Exhibits "Cancellers," held over the forge-fire?

Ans. In the same manner with a wire gauze, point extending up on the wire gauze into the hole in the bottom.

Int. 48. Did you at the same time, when you were at Middletown recently, finish any of these cancellers in the mode employed after 1858, by coating with oil and heating in a kiln in the mode you have described as having been then used?

(Objected to.)

Ans. Yes, sir.

Int. 49. If you have them with you please produce them to be put in evidence.

(Witness produces three cancellers and they are put in evidence and marked Defendants' Exhibit, Cancellor "B^1," "B^2," and "B^3" J. B. Mills, Special Examiner.)

Int. 50. Please look at these Exhibits, as they have been marked by the magistrate, and say what they respectively represent, taking them in their order as marked.

Ans. "Canceller B^{1}" represents cancellor baked in kiln by Mr. Angevine without oil; "Canceller B^{2}" represents canceller oiled and baked in kiln with "B^{1}" by Mr. Angevine; "Canceller B^{2}" same as "Cancellor B^{2}" oiled and baked in kiln at the same time as "B^{1}" and "B^{3},' by Mr. Angevine.

(Objected to as incompetent.)

Int. 51. Were you present at the time these cancellers were put in the klin and baked by Mr. Angevine?

Ans. Yes, sir.

Int. 52. To what extent did the process used in finishing "Cancellers B^{2}" and "B^{3}" correspond with the process used at the factory of J. O. Smith, at Middletown, while you were in their employment, after 1858 and until you enlisted?

Ans. Exactly the same.

Int. 53. You say that 'Canceller A^{2}' and 'A^{3}' were baked by holding them over a forge fire on wire gauze with points extending up into the hole in the bottom of the cancellers. Will you please look at the holder now shown you, and say whether it is the thing which you used recently at Middletown in finishing these 'Cancellers A^{2}' and 'A^{3}'?

Ans. Yes, sir; it is.

(The holder is put in evidence and marked Defendants' Exhibit, 'Sawyer's Holder,' J. B. Mills, Special Examiner.)

Int. 54. How far does this holder correctly represent that used by you at Middletown, in finishing cancellers like 'A^{2}' and 'A^{3},' prior to 1858?

Ans. As near as anyone could make two things alike.

Int. 55. Who made this exhibit 'Sawyer's Holder'?

Ans. I did.

(Record, p. 283–288.)

X-Int. 89. Was it in 1858 that you began to make check cancellers?

Ans. No.

X-Int. 90. When did you begin to make the check cancellers?

Ans In 1857.

X-Int. 91. In what month?

Ans. Early part; can't state the month.

X-Int. 92. Who furnished you the original model from which they were made?

Ans. James O. Smith furnished the original model check canceller made of steel, from which the pattern was made.

X-Int. 93. What color was it?

Ans. Straw color.

X-Int. 94. Who was it made by?

Ans. Claimed to be an imported one.

X-Int. 95. State again how you made the first cancellers as regards finish of surface after polishing?

Ans. I tried to heat them and get the color over a blacksmith's forge; got a straw and a blue color mixed up; no standard color. Marshall Graves was there when I was experimenting, and told me to put on a light coat of oil and I would get the color I was after, like sample.

X-Int. 96. What was Marshall Graves' business?

Ans. Blacksmith.

X-Int. 97. Then you never sent any check cancellers to the market finished without oil, did you?

Ans. No, sir.

X-Int. 98. What sort of oil did you use in the process you have described, over the forge?

Ans. Linseed oil.

X-Int. 99. Was it common raw linseed oil, such as painters use?

Ans. No, sir; it was boiled oil.

X-Int. 100. How did you put it on?

Ans. In my experiments I put it on with a piece of paper, and wiped it down there; afterwards used a brush.

(Record, p. 290, 291.)

X-Int. 122. Who had charge of the kiln in which the check canceller spears were baked?

Ans. Edward R. Angevine.

X-Int. 123. Where does he now live, and when did you last see him?

Ans. Middletown, Conn. I saw him to-day.

(Record, p. 292.)

X-Int. 148. What was the occasion of your change, in 1858, from the former method?

Ans. They brought some pen-racks that were of a dark color, with inkstand holder, and had me face them off bright on the raised part, and were returned to Mr. Angevine; when they came back to be put together, the raised parts were of the the same color as check-canceller points. I asked Mr. Angevine how he done them, and he said he done them with a light coat of oil, and high heat in the bottom of the kiln, (objected to as incompetent). I asked him then, if he couldn't do those canceller-tops or spears; the first two I took up to him I oiled, afterwards he oiled them and done them himself.

X-Int. 152. When was your attention first called to this

matter of cancellers, as made by you at J. O. Smith's. How long ago, I mean, since you left their employment?

Ans. I saw one of them, it might be two or three months ago, standing on Mr. Bradford's table, close to his desk. I said to him, there is some of the old work that I used to do before the war, and then, when I came to take it up and examine it, I says, this one isn't done as I used to make them. I used to have them represent steel color and straw color.

X-Int. 153. In how large quantities were goods made and baked in a kiln like "B^1," "B^2," "B^3," while you were in the employ of J. O. Smith & Son?

Ans. Not in large quantities. One gross, a half-gross a month, sometimes more, sometimes less.

(Record, p. 294.)

EDWIN B. ANGEVINE.

Int. 3. Give the exact date when you went into the employ of J. O. Smith & Son.

Ans. I arrived on the 7th of June, that will come on Friday, and I went to work on Saturday morning, 1857.

Int. 4. Do you know Wm. R. Sawyer, who has already testified in this case, and if yea, state whether or not he was at work for J. O. Smith & Son when you went into their employ, as stated by you?

Ans. He was.

Int. 5. At what did he work at that time and thereafter, while in the employ of said Smiths?

Ans. On stationers' hardware.

Int. 6. How long did he remain at work for J. O. Smith & Son, if you know?

Ans. Until he enlisted in the service in the year 1861; I couldn't say the day and date.

Int. 6. Did he work for them at all, after that?

Ans. No, sir.

Int. 8. Did he work at stationers' hardware all the time after you arrived, in 1857, until he went into the service, in 1861?

Ans. He did.

Int. 9. Please specify a little more in detail, the articles which Sawyer worked upon, under the general name of stationers' hardware?

Ans. Well, at that time, there was a big assortment of different kinds of pen-racks, desk-weights, bill-files, and there was different articles that came into the shop from different parties that was done. They was always getting up something new.

Int. 10. Describe the bill-files to which you refer in your last answer.

Ans. I couldn't tell you the number of them, or the names of them. Some only had one wire and some had two, and some was called a harp bill-file, and then these—pointing to the check-cancellers exhibits.

Int. 11. Do you remember whether the check-cancellers began to be made after your arrival at J. O. Smith & Son's, or whether they were already making them at the time?

Ans. I think they were made shortly after I came.

Int. 12. Do you mean they first made them shortly after you came?

Ans. Yes.

Int. 13. Do you know how these check-canceller heads were first finished by Mr. Sawyer?

Ans. I can't say that I saw him at first, but I see him afterwards; I see him do it, and I done it afterwards.

Int. 14. How did he do it, as you witnessed it?

Ans. He came in and got a camel's hair brush from me, about an inch square or an inch in length, put it in boiled oil, worked the brush out on the wire so that you would think that there was nothing in the brush at all, then he took and held the wire he had in here, (pointing to the hole in the base on "Canceller A²"), took this camel's hair brush and did it all over with this oil, then put it in the kiln and baked it. (On the answer being read, the witness says). That's wrong, he baked it over the forge; he had nothing to do with the kiln. I understood your question to refer to myself, when I answered it first.

Int. 15. When did you first finish the check-cancellers?

Ans. In the latter part of 1857.

Int. 16. In what condition were the check-cancellers' spears brought to you to be finished?

Ans. They were all finished to be oiled.

Int 17. Polished, or unpolished?

Ans. Polished.

Int. 18. From whom did they come?

Ans. From Mr. Wm. R. Sawyer.

Int. 19. What did you do with them, after they came to you, with polished surfaces, from Mr. Sawyer?

Ans. I dusted them off and oiled them, and put them in the kiln.

Int. 20. What kind of a coat of oil did you apply?

Ans. A thin coat of oil.

Int. 21. How did you make it thin?

Ans. At times, when I found it too heavy, I put turpentine and thinned it down a little,—a very little.

Int. 22. Describe the method of applying it to the spears, or canceller-heads, as you did it.

Ans. With a camel's hair brush, the same as Mr. Sawyer did it.

Int. 23. You said, in speaking of the way Mr. Sawyer did it, that he "worked the brush out on the wire so that you would think there was nothing in the brush at all;" what was the object of that?

Ans. So as you could get a light straw color; that's the way that I saw it, and that's the way that I did it.

Int. 24. What wire was the brush "worked out on?"

Ans. A small wire as big as a good sized pin, a triffle bigger around than a hair-pin, across the cup the oil was in.

Int. 25. What was done with the canceller spears after they were subjected to the thin coat of oil?

Ans. They were carried back to Mr. Sawyer after they were baked.

Int. 26. Describe the way they were baked before going back to Mr. Sawyer.

Ans. They were put on the bottom of the kiln, with no other work into it. We got it as hot as we possibly could, and set them on the bottom and leave them in an hour; look at them, if they wasn't the right color leave them; when they got the right color took them out.

Int. 27. Why was there no other work in the kiln at the time the check cancellers were baked?

Ans. Because tin work would melt down with it.

Int. 28. With what materials were the kilns heated in which this work was done?

Ans. Coal—egg coal.

Int. 29. How was the bottom of the kiln or kilns made?

Ans. Well, from the fire to the plate, I should judge, would be about three inches, and there was two inches from that to the sheet iron plate.

Int. 30. Do you mean that the coal fire was about three inches below the iron plate which formed the floor of the kiln?

Ans. There was a cast iron plate over the fire and a sheet iron plate two inches from that.

Int. 31. How did you know when the kiln was hot enough to put in the check cancellers?

Ans. When I could see that it got red on the bottom.

Int. 32. How did the color and appearance of the canceller spears which you finished, compare with Defendants' Exhibits, "Cancellers B^2" and "B^2"?

Ans. It was the same.

Int. 33. You have stated that you first finished these cancellers with oil and heat, in 1857. How long did you continue to do so upon Mr. Sawyer's work?

Ans. Up to the time that Mr. Sawyer left.

Int. 34. Mr. Sawyer states that "Cancellers B^2" and "B^2" were oiled and baked in kiln by you, and that "Cancellor B^1" was baked at the same time without oiling. State whether or not you agree with Mr. Sawyer as to that matter?

Ans. They were.

Int. 35. State whether or not they were oiled and baked in the same way as the canceller spears which were oiled and baked by you, from and after 1857, as you have testified?

Ans. The same.

Int. 36. What has become of the kiln or kilns in which you baked the check cancellers made by J. O. Smith & Son?

Ans. They were burned up and destroyed.

Int. 37. When was the fire and what was its extent?

Ans. I think it was in the year 1874. It was total, everything burned clean up, with the exception of the iron shop.

Int. 38. When you baked the spears did you put them on the cast iron plate, or the sheet iron plate which was above the cast iron plate?

Ans. Sheet iron plate.

Int. 39. Which plate was it that was red when the kiln was hot enough for baking this class of work?

Ans. As soon as you could see the sheet iron plate, as big as a ten cent piece, red, then you could know that the cast iron plate was red hot.

Int. 42 At what heat was the straw color produced upon the iron of which the check cancellers were made?

Ans. I should judge between 450° Fhr. and 500° Fhr., somewhere in that neighborhood, in that part of the kiln.

Int. 43. Do you remember what kind of a tool was used by Sawyer to support the spear heads when he bronzed them over the forge?

Ans. It was one that resembled that—referring to Defendants' Exhibit "Sawyer's Holder,"—It might be a trifle larger or a trifle smaller, so far as I know.

(No Cross-Examination.)

(Record, p. 297–300.)

No attempt was made to contradict any material fact testified to by the defendants, (appellees), witnesses.

In answer to cross-questions many names and residences were given, of men who knew or might have known of the facts testified to, but not one of those men was called by appellant.

Throughout the course of a cross-examination which was at first minute and thorough, but gradually diminished in length and confidence as corroborative evidence accumulated, no material contradiction or confusion of facts was discovered.

Mr. Tucker, who figures in appellant's case, as patentee, complainant's expert, and solitary witness, conjectures that witnesses must have been mistaken as to this fact, or wrong as to another. But the appellants reply to this testimony is necessarily limited (in the absence of any contradictory evidence,), to the proposition that even if these witnesses tell the truth, the acts and things described therein do not anticipate the patent.

A comparison of the New Britain process with that of the re-issue shows the following resemblance:

NEW BRITAIN PROCESS OF 1853–64.	TUCKER PATENT OF 1863.
Castings cleaned with wire-brush, and prominent parts rubbed bright with sandpaper, etc.	Surface of iron cleaned from sand, scale, etc.
Covered with a thin coat of (dilute) linseed oil, put on by a brush.	Covered by a very thin coat of linseed oil, or any oil which is the equivalent therefor.
Treated to such a degree of heat as would change the unoiled parts to a straw color, or blue.	Submitted to a degree of heat as may be measured by an intensity sufficient to change a brightened surface of unoiled iron to a color varying from a light straw color to a blue.

And the New Britain process, as sworn to, being tested in the presence of the examiner, resulted in the "Ruff Art

Exhibit," which is undoubted and undisputed Tucker bronze

It is also testified that many other exhibits in the case, which are admitted to be Tucker bronze, were made exactly according to the sworn description of the New Britain process.

So that the process testified to is not only identical in its methods with the patented process, but upon trial it produces identically the same result.

It seems unnecessary to parry all the speculative pin pricks which appellants deliver against this mass of evidence, because conjecture is too slight a weapon to seriously affect the consistent testimony of twelve witnesses.

But these are special circumstances in the case, which make the following observations relevant.

The original patent was granted Dec. 15, 1863.

The bill was filed Jan., 1880, sixteen years later, and eleven months before expiration of the re-issues. No explanation of this delay is made; the defendants have continuously been in the same line of business, and the evidence is that they have been ornamenting iron work with linseed oil and heat for many years.

In the face of this unexplained delay, appellees can

hardly lay much stress on the lapse of time between the testimony and the events sworn to.

Another thing should be noted; that this patent relates to a style of *ornamentation*, and not to a new article having some intrinsic usefulness. It is, therefore, of little importance to inquire whether the articles manufactured by defendants in 1853–9 became suddenly popular. The fashion of to-day is not the fashion of 1850, when, as appears in the testimony, a "green and gold" bronze, produced by dusting the sticky surface of varnished hardware for house fittings with green and yellow powders, seems to have been esteemed a desirable finish.

But in fact the "antique bronze" appears to have been made and sold quite extensively until the removal to New Haven in 1864, where the lack of proper kilns prevented its manufacture for about three or four years. Its place in defendants' stock of goods was taken in 1867–8, by "Berlin Bronze," made in a different way, but also involving oil and heat, which latter finish has been largely made and sold ever since.

The exigencies of modern competition have compelled the adoption of a process demanding less care than was involved in the Brocksieper process, and the process now employed by the defendant sacrifices some of the beauty of result which Brocksieper attained, to the convenience

of a manufacture in which the thickness of the applied coat of Japan is a matter of indifference.

And the English finish carriage knobs have been continuously made and sold by defendants from 1853–4 to the present time, excepting the period after the removal to New Haven, where proper kilns were wanting.

As the result of appellant's delay in bringing suit defendants are able to identify only one original antique as made prior to the patent: the "Brocksieper Picture Frame."

As to this Exhibit, Mr. Tucker—being his own expert—naturally conjectures that it was made by some other process than that by which Brocksieper swears positively that he did make it, and he suggests, without affirming it, that it was possibly done by *copper plating* the casting.

Even Mr. Tucker does not deny that it might have been made by Mr. Brocksieper's process.

Brocksieper's evidence is positive in itself, and is corroborated by the evidence of other witnesses to whom he showed the same process at about the same time.

Mr. Earle, defendant's expert, recognizes it as having been through a process substantially like the patented process. (Record, fol. 423.)

Any theory of construction of the Tucker patent, which excludes the New Britain process, excludes, also, the alleged infringing exhibits.

The three essentials of the patent are, cleansing, oiling, and heating.

No doubt the New Britain castings were cleaned,—some were rubbed bright with sandpaper, some were filed in a lathe, and the Middletown check-cancellers were polished,—before oiling.

Upon that point, no claim of difference can arise.

The oiling, as described in the patent, requires a "very thin coat," and rubbing off the surplus oil is suggested, but not required.

An equally thin coat of oil may be obtained by diluting the oil with a volatile solvent, such as turpentine, which disappears in the heating.

The witnesses here describe two methods of obtaining a thin coat.

One was to use linseed oil, itself put on with a brush,—a method recommended by the patent itself.

The other was the use of "size," *i. e.*, oil, turpentine, and varnish, mixed in about equal parts,—a method which, being tried, admittedly produces Tucker bronze.

And in the case of the check cancellers, it appears that there actually was a rubbing off of the surplus oil.

> X-Int. 100. How did you put it (the oil) on?
>
> Ans. In my experiments I put it on with a piece of paper and wiped it down there, afterward used a brush.
>
> Record, p. 291, Sawyer's dep.

Nevertheless appellants in the Court below strenuously insisted that the coating of oil was not as thin as that described in the re-issued patents.

As to the heat used in the Gebhard kiln in New Britain, there can be no question, for it was measured by a thermometer, and the concurrent testimony of all the witnesses who practiced or saw the process, is that the unoiled parts of the article were changed to a straw color or a blue.

The only possible point of uncertainty is, whether the film of oil applied was as thin as is prescribed by the patent.

We insist that it was, but without yielding the point for an instant, we may say that our case is good without it.

The coat of oil, as applied by the New Britain witnesses, was thin enough so that the metal was oxidised beneath it; and if it be conceded that the resulting product had a thin layer of baked oil on top of the oxidised metal, that is enough to exclude the defendant's manufacture from the patent.

His Honor, Judge Shipman, took that view of the case, and it will be seen that the conclusion is irresistible. The theory of alleged infringement demands the proposition that to first oxidise the iron and then bake on oil or varnish is the same process as to bake iron and varnish together at one heat.

Applying that proposition to the defendants' manufacture which has a material coat of oil and varnish, and assuming that in the New Britain process, a material coat of oil was used, the defendants, as Judge Shipman says, "does what Brockseiper did in 1857, except that it takes two steps instead of one to accomplish the result.

The judgment of the Circuit Court should be affirmed.

JOHN S. BEACH,

JOHN K. BEACH,

CHARLES E. MITCHELL,

Counsel for Appellees.

[2—175.]

Department of the Interior.

United States Patent Office.

To all Persons to whom these Presents shall come, Greeting:

THIS IS TO CERTIFY, That the annexed is a true copy from the Records of this Office, of the Letters Patent, granted Hiram Tucker December 15th, 1863, Number 40,964, for Improved Process of Bronzing or Coloring Iron.

IN TESTIMONY WHEREOF, I, M. V. Montgomery, Commissioner of Patents, have caused the Seal of the Patent Office to be affixed this sixth day of December, in the year of our Lord one thousand eight hundred and eighty-six, and of the Independence of the United States the one hundred and eleventh.

{SEAL}

M. V. MONTGOMERY,

Commissioner.

No. 40,964. (2—157.)

United States of America.

To all to whom these Letters Patent shall come:

WHEREAS, Hiram Tucker, of Newton, Massachusetts, has alleged that he has invented a new and useful Improved Process of Bronzing or Coloring Iron, which he states has not been known or used before his application; has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said invention, and that the same hath not, to the best of his knowledge and belief, been previously known or used; has paid into the Treasury of the United States the sum of thirty-five dollars, and presented a petition to the Commissioner of Patents signifying a desire of obtaining an exclusive property in the said invention, and praying that a patent may be granted for that purpose.

THESE ARE, THEREFORE, to grant, according to law, to the said Hiram Tucker, his heirs, administrators, or assigns, for the term of seventeen years from the fifteenth day of December, one thousand eight hundred and sixty-three, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said invention, a description whereof

is given in the words of the said Hiram Tucker in the schedule hereunto annexed, and is made a part of these presents.

IN TESTIMONY WHEREOF, I have caused these Letters to be made Patent, and the seal of the Patent Office has been hereunto affixed.

Given under my hand at the City of Washington, this fifteenth day of December, in the year of our Lord one thousand eight hundred and sixty-three, and of the independence of the United States of America the eighty-eighth.

{SEAL}

J. P. USHER,

Secretary of the Interior.

Countersigned, and sealed with the seal of the Patent Office.

JOHN L. HAYES,

Acting Commissioner of Patents.

United States Patent Office.

HIRAM TUCKER, OF NEWTON, MASSACHUSETTS.

Improved Process of Bronzing or Coloring Iron.

Specification forming part of Letters Patent No. 40,964, *dated December* 15, 1863.

To all whom it may concern:

Be it known that I, Hiram Tucker, of Newton, in the county of Middlesex, in the State of Massachusetts, have invented a new and Improved Process or Method for Superficially Bronzing and Coloring Iron; and I do hereby declare that the following is a description of my invention, sufficient to enable those skilled in the art to practice it.

My invention consists in a novel mode or process by which I produce on the surface of iron a change of color, which I term "bronzing," not by the application of pigments in the forms of solutions, paints, or lacquers, whether dried or hardened by heat or by simple atmospheric exposure, but by chemical changes of and upon the surface of the iron.

In the practice of my invention I produce the bronze effect or color by the combined action of heat and linseed-oil, or its equiv-

alent, upon the surface of the metal. Heat alone produces that change of color on the brightened surface of iron which ranges from light straw-color to deep blue, which I understand to be the result of oxidation, (though this color may be the result of some other chemical superficial change of the iron the chemistry of which may not be understood by me,) and the oil acting upon or with the resultant of heat or in conjunction with heat on the iron changes the color thereby produced to a bronze tint, the the darkness of which depends upon the intensity of the heat to which the iron is submitted, and also upon the number of times the operation is repeated.

In practice I proceed as follows: The surface of the iron is cleaned from sand, scale, or other foreign matter, and where fine effects are desired the surface is best made smooth or polished. Under given conditions of heating and oiling the finer the polish the lighter is the bronze tint produced. In cases where ornamentation is obtained by relief the salient parts should be the most highly polished or most smoothly surfaced in order that the color produced upon them shall not be so deep as it is on those parts which are in the rear, so as to imitate thereby more nearly the effect of genuine bronze, in which its natural oxidation is apt to be somewhat worn away from its salient parts, and therefore lighter in color. When the iron is thus prepared I cover it with a very thin coating of lin-eed-oil or its equivalent, (such a coating as I find best attained by rubbing off the oiled surface thoroughly with a rag or sponge, or otherwise,) and then submit it to a degree of heat which will change a brightened surface of clean, unoiled iron, to a color varying from a light straw-color to a deep blue, the lowest degree of heat producing the lightest

colored changes and the lightest bronze, and the highest degree of heat producing the darkest-colored changes and the darkest bronze; but, as the oil is present, the metal does not change its color under the influence of heat, as it would if free from the oil. As the iron becomes heated the color obtained will be bronze of an intensity corresponding to the degree of heat employed; but it should be observed that the heat may be made so intense and so long continued as to destroy the effects of the oil, in which case the iron will lose the bronze tint acquired and will assume the dark-blue shade. The perfection of the results obtained under these instructions will of course depend, in a considerable degree, upon the dexterity and watchfulness of the operator.

In practice I prefer to use boiled linseed-oil. When the desired shade of bronzing is obtained the iron is removed from the oven or furnace, and, if desired, may again be treated with oil, as before, even if not cool, and then again submitted to the action of heat, as described, and the operation of oiling and heating may be repeated indefinitely, each repetition deepening the shade of the bronzing. I recommend that at each repetition the degree of heat should be less than the degree immediately before employed. The process may be carried to such an extent by repetition of oiling and heating as to produce a very dark color—black even may be thus produced.

The particular process thus described is the best known to me; but it may be modified somewhat in practice without departure from my invention—as, for instance, the iron may first be heated and afterward oiled, the oiling with the heat contained in the iron changing the color obtained by heat alone into a bronze. The bronzing may be protected by a coat of varnish, (that which

is colorless being preferred,) and the varnish may be dried over the bronzing by exposure to the atmosphere; or it may be baked or dried by heat, and, if desired, the bronze color may be darkened by submitting the varnish to a degree of heat sufficient to deepen and change its hue.

I claim—

The process of bronzing iron, substantially as described.

HIRAM TUCKER.

Witnesses:

J. B. CROSBY,

FRANCIS GOULD.